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CIRRHOSIS OF THE LIVER TREATED WITH PROLONGED SODIUM RESTRICTIONS

IMPROVEMENT IN NUTRITION, HEPATIC FUNCTION, AND PORTAL HYPERTENSION

Charles S. Davidson, M.D., Boston

Cirrhosis of the liver is characteristically associated with a moderate or a severe degree of undernutrition that is evidenced by wasting of muscle mass and loss of subcutaneous tissue. Massive ascites usually accompanies this state of chronic, severe liver disease, so that the patient with cirrhosis and massive ascites has been likened to a spider because of his large fluid-filled abdomen and spindly extremities. That this state of undernutrition in cirrhosis is often reversible was shown particularly by the classic work of Patek and his colleagues.[1] The complications of liver disease, such as massive hematemesis, hepatic coma, and, of more particular concern here, ascites requiring frequent paracenteses, has limited the effectiveness and possible duration of nutritional therapy, thus shortening the time available to permit improvement in nutrition and, presumably, in the liver disease.

Work from a number of clinics has demonstrated that sodium restriction when continuous and of sufficient degree will effectively control ascites formation and will sometimes lead to prompt diuresis and loss of fluid accumulation.[2] Many patients, however, do not have a prompt diuresis and loss of ascites when such a regimen is instituted but continue to have ascites although paracentesis is no longer required. My purpose is to present here the sequence of events of 30 patients with chronic cirrhosis of the liver and with ascites and edema, most of whom were undernourished and who were treated with an adequate diet restricted to approximately 200 mg. of sodium per day for periods of from a few weeks to two years. Evidence will be presented indicating that, with suitable cooperation of the patient and barring other complications, such a regimen, if persisted in, leads to loss of ascites and edema, improvement of the nutrition of the individual, and evidences of amelioration of the liver disease and portal hypertension.

MATERIALS AND METHODS

The 30 patients discussed were selected from the medical wards of the Boston City Hospital because of a diagnosis of cirrhosis of the liver with ascites and on the basis of a presumed ability to cooperate with the regimen prescribed. None was suffering at the time from other complications of liver disease. Of the 30 patients, 28 were known chronic alcoholics, but 2 clearly were not, although the cause of their disease was unknown. All patients were transferred to the metabolic ward in the Thorndike Memorial Laboratory for study except for three for whom the regimen was instituted on an outpatient basis. The patients admitted to the ward for study were followed for periods of from a few weeks to many months and subsequently were discharged to the outpatient clinic, where the regimen was continued. The diagnosis of cirrhosis of the liver was made on clinical grounds and was substantiated by biopsy or autopsy in several instances. Four of the patients were considered well nourished when first observed. In 16, undernutrition was moderate, and 10 were severely undernourished.

All patients studied on the metabolic ward were provided with a diet adequate in calories and protein (50-100 gm. daily) but containing approximately 200 mg.

From the Thorndike Memorial Laboratory, second and fourth medical services (Harvard), Boston City Hospital, and the Department of Medicine, Harvard Medical School.

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This work was begun in collaboration with Drs. A. M. Cooper, W. W. Faloon, and R. D. Eckhardt[2] and has continued with Drs. G. J. Gabuzda Jr. and H. S. Traeger.[2d]

[1] Patek, A. J., Jr., and others: Dietary Treatment of Cirrhosis of the Liver: Results in 124 Patients Observed During a Ten Year Period, J. A. M. A. **138**: 543-549 (Oct. 23) 1948.

[2] (*a*) Faloon, W. W.; Eckhardt, R. D.; Cooper, A. M., and Davidson, C. S.: The Effect of Human Serum Albumin, Mercurial Diuretics, and a Low Sodium Diet on Sodium Excretion in Patients with Cirrhosis of the Liver, J. Clin. Invest. **28**: 595-602, 1949. (*b*) Layne, J. A., and Schemm, F. R.: The Use of a High Fluid Intake and a Low-Sodium Acid-Ash Diet in the Management of Portal Cirrhosis with Ascites, Gastroenterology **9**: 705-717, 1947. (*c*) Eisenmenger, W. J.; Blondheim, S. H.; Bongiovanni, A. M., and Kunkel, H. G.: Electrolyte Studies on Patients with Cirrhosis of the Liver, J. Clin. Invest. **29**: 1491-1499, 1950. (*d*) Gabuzda, G. J. Jr.; Traeger, H. S., and Davidson, C. S.: Hepatic Cirrhosis: Effects of Sodium Chloride Administration and Restriction and of Abdominal Paracentesis on Electrolyte and Water Balance, ibid. **33**: 780-789, 1954.

of sodium daily. The diet used was that previously described,[3] with minor modifications. Essential for sodium restriction of this degree is a low-sodium milk product. We have used Lonalac with good success. Calculation of sodium content was made from published tables.[4] While the patients were under study on the ward, the dietitians availed themselves of the opportunity to teach them how sodium restriction could be maintained when they were discharged to the outpatient clinic.

The control of ascites formation by sodium restriction was shown by a constant weight and abdominal circumference and a relatively steady daily urine volume. When diuresis was rapid, body weight and abdomin circumference decreased and the urine volume in creased. Slow diuresis usually was not reflected by pe ceptible change in urine volume, and weight loss wa often masked by a concomitant gain in flesh. Method used for laboratory determinations were standard c have been previously described.[5] Diets were occasionall analyzed for sodium, potassium, and nitrogen; the elec trolytes were studied, after ashing, by flame photom etry and the nitrogen was studied by macro-Kjeldah analysis.

RESULTS

The response of the patients to the adequate die restricted in sodium described above was of three kind (table 1): prompt diuresis, delayed diuresis (loss o ascites and edema only after prolonged sodium restriction), or failure. Diuresis began within a few days afte

TAELE 1.—*Clinical Course of Thirty Patients*

Case No.	Age	Sex	Alcoholism, Degree and Duration (0-4+)	Estimated Previous Food Intake*	Duration of Ascites	No. of Paracenteses	Total Duration of Therapy	Duration Until Ascites-Free	No. of Paracenteses	Response to Sodium Challenge	Ultimate Results
						Group 1, Prompt Diuresis					
1	44	M	4+	F	1 wk.	0	13 mo.	2 mo.	0	Not done	Psychosis, unknown etiology
2	..	M	4+	F	2 yr.	"Many"	27 mo.	1 mo.	0	Not done	Alcoholism again Died in hepatic coma
3	59	M	4+	F	19 mo.	0	6 mo.	2 mo.	1	Tolerates	Lost
4	42	M	4+	P	6 wk.	0	1 mo.	1 mo.	0	Not done	Alcoholism again Died in hepatic coma
						Group 2, Moderately Delayed or Slow Diuresis					
5	53	M	4+	F	8 mo.	20	30 mo.	6 mo.	0	Tolerates	"Well"
6	55	M	3+	G	3 mo.	1	6 mo.	3 mo.	0	Tolerates	"Well"
7	42	M	4+	P	6 mo.	0	6 mo.	3 mo.	0	Not done	Lost
8	63	M	3+	F	4 mo.	1	4 mo.	4 mo.	0	Not done	Continuing
9	43	M	4+	P	7 mo.	9	38 mo.	16 mo.	0	Tolerates moderate sodium load	Alcoholism again
10	47	M	4+	P	3 wk.	1	8 mo.	5 mo.	0	Tolerates moderate sodium load	Died—coma after morphi
11	43	F	4+	P	6 wk.	0	9 mo.	3 mo.	0	Not done	Lost
12	57	M	4+	F	Unknown	1	24 mo.	9 mo.	0	Not done	Alcoholism recurred
13	63	M	0	G	3 mo.	14	12 mo.	6 mo.	0	Not done	Died—hematemesis †
14	54	F	3+	P	2 yr.	"Many"	27 mo.	14 mo.	0	Tolerates	"Well"
15	43	F	4+	P	3 mo.	5	17 mo.	13 mo.	0	Tolerates	"Well"
16	65	M	2+	F	4 mo.	1	36 mo.	9 mo.	1	Tolerates	Lost
17	65	F	4+	P	2 mo.	1	16 mo.	12 mo.	0	Tolerates	"Well"
18	45	M	3+	P	3 wk.	0	14 mo.	11 mo.	0	Tolerates moderate sodium load	"Well"
						Group 3, No Diuresis				Course	
19	70	M	3+	F	3 mo.	12	8 mo.	....		Well controlled on ward, failed to cooperate OPD	Died, hepatoma
20	46	M	4+	P	½ mo.	3	6 mo.	....		Well controlled	Died, upper GI hemorrhag
21	47	F	4+	P	2 mo.	5	¾ mo.	....		Well controlled	Lost
22	52	F	4+	P	2 mo.	2	4½ mo.	....		Well controlled	Died, upper GI hemorrhag
23	50	M	4+	P	6 mo.	0	1 mo.	....		Well controlled on ward, alcoholism recurred	Died, coma
24	67	M	4+	F	2 mo.	2	2½ mo.	....		Well controlled on ward, then lost	Died, coma
25	61	M	2-3+	F	1 mo.	2	3 mo.	....		Well controlled on ward, then lost	Died, coma
26	64	M	2-3+	P	6 mo.	5	14 mo.	....		Well controlled; ascites now slowly diminishing	
27	36	F	0	F	6 mo.	0	2½ mo.	....		Well controlled	Died, hematemesis
28	47	F	3+	P	8 mo.	8	½ mo.	....		Well controlled on ward, then lost	Died after hepatic artery ligation
29	50	M	2-3+	G	1 yr.	0	1 mo.	....		Well controlled	Lost
30	50	M	4+	G	6 mo.	0	3 mo.	....		Well controlled on ward but not in OPD	Died, upper GI hemorrhag

* G = good, F = fair, P = poor.
† Site of bleeding not found; not from varices.

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[3] Davidson, C. S., and Gabuzda, G. J., Jr.: Medical Progress: Nutrition and Disease of the Liver, New England J. Med. 243:779, 1950.

[4] Sodium Restricted Diets: The Rationale, Complications and Practical Aspects of Their Use, Bulletin 325, Food and Nutrition Board, National Academy of Sciences—National Research Council, 1954.

[5] Phillips, G. B.; Gabuzda, G. J., Jr., and Davidson, C. S.: Comparative Effects of a Purified and an Adequate Diet on the Course of Fatty Cirrhosis in the Alcoholic, J. Clin. Invest. 31:351-356, 1952.

sodium restriction was instituted in four patients (group 1) and continued until each was free of ascites and edema (fig. 1). Fourteen patients (group 2) were maintained with ascites and edema but without paracentesis for from 3 to 16 months by sodium restriction. During this time gradual loss of ascites and edema became evident and was usually attended by a striking improvement in nutritional status (table 2 and fig. 2, 3, and 4). Several patients required many months of sodium restriction before ascites disappeared. Improvement in liver function and a rise in serum albumin concentration were also frequently noted (table 2). The menses often reappeared as this improvement became evident, and the males usually noted an increase in libido and in body hair. Perspiration, usually greatly diminished when ascites is present, was often noted to return at about the same time. Evidences of portal hypertension were often seen to diminish: loss of ascites, decrease in visible abdominal collaterals, and reduction of splenomegaly (fig. 3, left two pictures, and fig. 4).

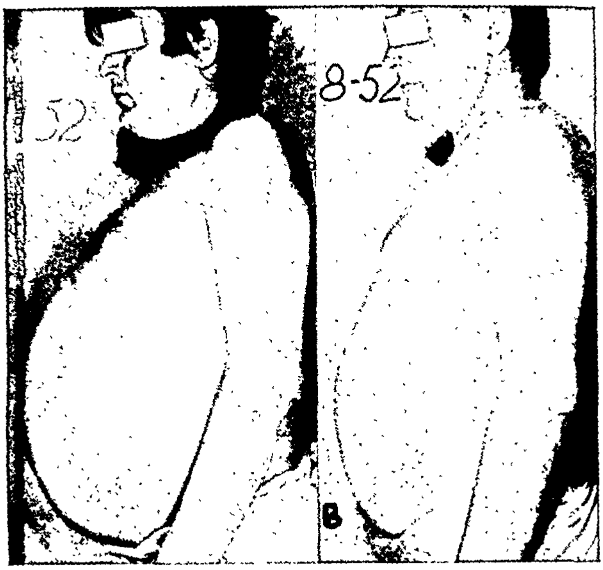

Fig. 1.—Prompt, continual but gradual loss of ascites from an alcoholic with cirrhosis of the liver. Other changes in habitus may be noted. *A*, April 11, 1952; *B*, July 8, 1952. Treatment was an adequate diet with about 200 mg. of sodium daily, after alcohol withdrawal.

TABLE 2.—*Effect of Sodium Restriction on Nutrition and on Laboratory Measurements* *

Case No.	Nutrition †		Total Serum Bilirubin, Mg. per 100 Ml.		Sulfobromophthalein Excretion, % Retention		Serum Sodium, Mg. per 100 Ml.		Serum Albumin, Gm. per 100 Ml.	
	B	A	B	A	B	A	B	A	B	A
				Group 1, Prompt Diuresis						
1	G	G	...	...	..	..	141	141	2.3	2.8
2	F	F	...	...	..	..	139	139	2.0	2.8
3	P	F	...	...	..	..	135	140	...	...
4	F	F	13.7	2.7	42	31	140	140	...	...
				Group 2, Moderately Delayed or Slow Diuresis						
5	P	G	...	0.6	27	20	135	142	1.5	3.0
6	G	G	4.8	3.2	48	47	133	141	...	3.4
7	F	F	...	...	..	..	137	137	...	...
8	F	G	1.4	...	45	29	140	140	...	3.7
9	P	F	...	...	..	..	130	140	2.1	3.7
10	F	G	...	...	.	..	126	138	2.1	2.4
11	F	F	...	...	..	..	140	140	1.9	3.9
12	F	G	...	...	..	..	140	140	3.0	3.7
13	F	F+	...	...	..	..	135	144	2.0	2.3
14	P	G	...	0.5	..	17	...	...	...	3.1
15	P	G	0.6	0.4	20	7	118	130	2.7	4.4
16	F	G	...	...	..	..	...	...	2.8	2.8
17	F	G	3.6	0.6	48	53	140	140	2.6	4.5
18	P	G	2.2	0.7	47	28	138	138	2.8	4.1
				Group 3, No Diuresis						
19	G	G	...	...	..	..	140	140	2.5	3.9
20	F	G	...	...	..	..	130	133	2.0	2.9
21	P	P	...	...	..	..	135	142	2.0	3.4
22	F	F	2.8	1.5	56	36	128	128	...	...
23	P	P	2.2	...	54	..	130	130	...	...
24	F	G	2.6	...	44	..	140	140	...	...
25	F	F	4.6	2.5	..	..	130	130	...	...
26	P	P	...	...	..	..	...	140	...	...
27	F	P	...	...	..	..	140	134	...	...

* B = before, A = after sodium restriction. For duration, see table 1.
† G = good, F = fair, P = poor.

Twelve patients (group 3) failed to lose ascites and edema, although ascites formation ceased in every case. All but one of these had an inadequate trial of sodium restriction, due either to failure to adhere to the regimen, often with resumption of drinking, or, in two, to death from massive upper gastrointestinal hemorrhage.

Of the patients in whom a diuresis occurred, four have subsequently died (three of hepatic coma and one of gastrointestinal hemorrhage), five have been lost from the clinic, three of whom are known to be ascites-free although drinking again, and six are well. Ten of the patients who lost ascites and edema were allowed a moderate sodium intake (usually between 1 and 3 gm. of sodium daily) after diuresis had been completed and were found to be able to excrete these sodium loads normally.

Laboratory determinations when they were done both before and after sodium restriction and diuresis indicated improvement in each instance. When bilirubinemia was present, the concentration usually returned to normal or at least showed considerable improvement. Some reduction in sulfobromophthalein retention was likewise noted in most instances in which the test was done on both occasions.

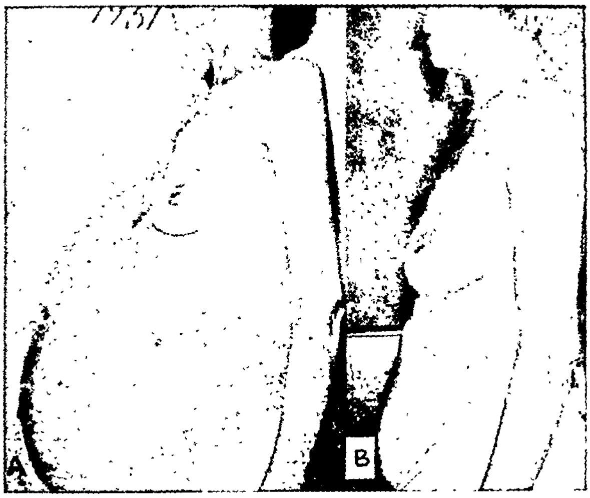

Fig. 2.—Gradual loss of ascites and marked improvement in nutritional status of patient with cirrhosis of the liver. Disappearance of abdominal collaterals is evident. Treatment was an adequate diet with about 200 mg. of sodium daily, after alcohol withdrawal. *A*, photograph taken April 5, 1951; *B*, taken March 21, 1952.

The serum sodium concentration was 135 mEq. per liter or below in six of the patients and during sodium restriction rose to 135 mEq. per liter or above. In every patient in whom diuresis occurred, the initial serum albumin concentration was 3 gm. per 100 cc. or below, and in each of the 11 instances in which the measurement was made on both occasions, the concentration rose, reaching 4 gm. per 100 cc. or above in 3.

COMMENT

The results indicate that sodium restriction to approximately 200 mg. per day controlled ascites and edema formation in all of the 30 patients with chronic cirrhosis of the liver. This confirms our previous experience with this regimen and that of others. Prompt diuresis, however, was observed in only 4 (group 1) of the 30 patients, so that this favorable response can seldom be expected. It was necessary to continue sodium restriction for from 3 to 16 months until the remainder of the patients studied long enough were ascites-free. Six months or more was required in nine of the patients. The restriction of sodium intake was continued after the patients were ascites-free in almost every instance, sometimes for many months. After this, all nine of the patients to whom a moderate sodium challenge was administered were able to excrete the load, maintain sodium balance, and continue to be free of ascites. Presumably strict sodium restriction was unnecessary after ascites disappeared in the patients in whom it was continued; however, it was considered better not to alter the regimen too rapidly, particularly early in the study before the rapid regaining of sodium tolerance was realized. Usually liberalization of sodium intake was begun by increasing the meat allowance for the day. If this were well tolerated, regular milk was substituted for the sodium restricted milk product. Then regular bread and salted butter were allowed. Most of the patients continued not to use salt at the table and avoided highly salted foods.

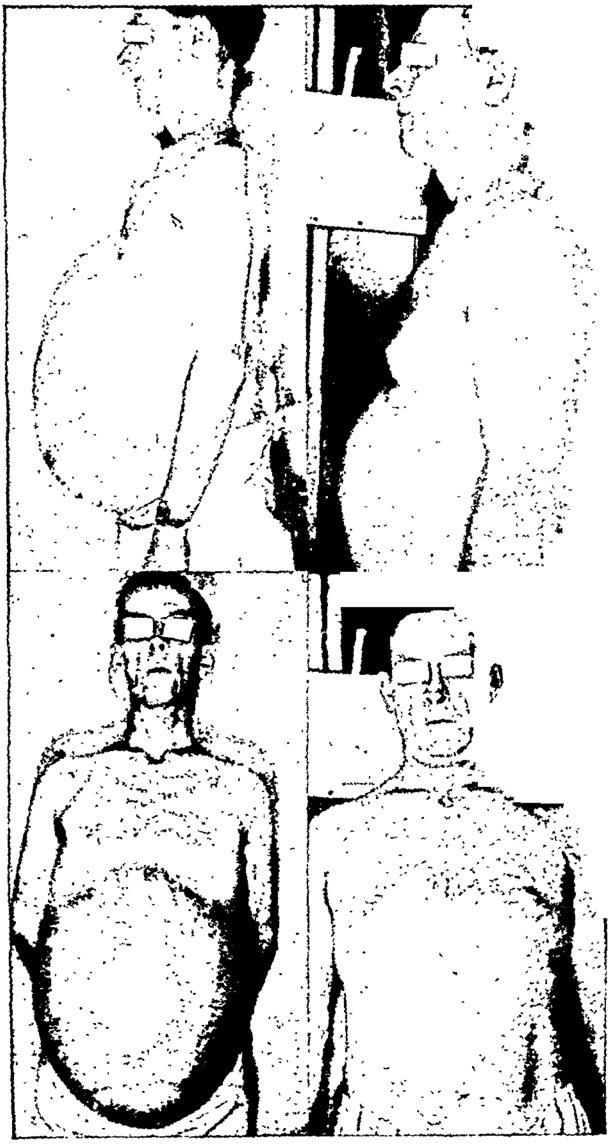

Fig. 3.—Gradual loss of ascites and marked improvement in nutritional status of patient with cirrhosis of the liver. Disappearance of abdominal collaterals is evident. First picture was taken Dec. 24, 1951, and last, Aug. 20, 1954. Treatment was an adequate diet with about 200 mg. of sodium daily, after alcohol withdrawal.

The improvement in nutritional status experienced by most of these patients was striking and usually coincided with evidences of improved liver function (see below), increased feeling of well being, and improved appetite. It was not possible to determine which of these changes came first. The results demonstrate that relatively severe sodium restriction even when prolonged and necessitating the use of a sodium-restricted milk is compatible not only with maintenance of adequate nutrition but also with a gain in body flesh and fat.

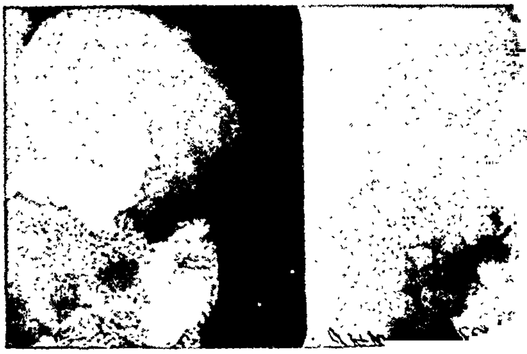

Fig. 4.—Roentgenogram of patient shown in figure 3. X-ray examination with barium shows the stomach pushed to the right by large spleen before therapy (left). Considerable shrinking of the spleen with movement of stomach to more nearly normal position is shown on right.

The improvement in serum bilirubin concentration, sulfobromophthalein excretion, and serum albumin concentration, together with the return of menses, increase in libido and in body hair in the males, and the return of perspiration, strongly suggest that continuance of the adequate diet with sodium restriction permitted improvement in liver function, presumably from liver regeneration.

Although it is possible to maintain patients with cirrhosis of the liver in positive nitrogen balance even when the disease is advanced, the positiveness of the balance usually increases as evidences of disease diminish.[6] Precisely how severe liver disease interferes with the laying down of body tissue protein is not known, although several disturbances in amino acid metabolism have been demonstrated. Increased urinary excretion of amino acids, although often present in patients with severe liver disease, is not great enough in extent to be limiting nutritionally. Improvement in absorption of protein likewise is not a factor, as stool nitrogen is not particularly increased in these patients.[6]

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[6] Gabuzda, G. J., Jr., and Davidson, C. S.: Protein Metabolism in Patients with Cirrhosis of the Liver, Ann. New York Acad. Sc. 57: 776-785, 1954.

It is clear that the 12 instances of failure were due to incomplete follow-up, to failure of the patient to cooperate with sodium restriction after discharge from the hospital, to return to alcoholism, or to death from massive upper gastrointestinal hemorrhage or hepatic coma. Of the patients who sustained a diuresis, four have returned to alcoholism again; one died of hematemesis and three of hepatic coma, one after morphine administration; one developed a psychosis of unknown etiology; and four were subsequently lost from the series. Thus, only six remain well. It is evident from these results that, although ascites and edema can be satisfactorily controlled and as liver function improves the fluid accumulation disappears and the patient returns toward a more normal existence, the problems of chronic alcoholism and hepatic coma become the limiting factors in recovery and rehabilitation from cirrhosis of the liver.

The decrease in portal hypertension observed here might be considered to obviate the necessity for accomplishing this result by surgical means (e. g., portacaval shunt). However, to establish this concept firmly it will be necessary to show that esophageal varices disappear and do not bleed during treatment or after.

SUMMARY

The provision of an adequate but sodium-restricted (200 mg. daily) diet prevented the further accumulation of ascites of 30 patients with cirrhosis of the liver. Prompt diuresis occurred in 4 patients but was delayed (3 to 16 months) for 14 and failed to occur in 12. Prolonged therapy resulted in clinical evidences of improved nutrition and liver function and reduction of portal hypertension. A fall of serum bilirubin concentration and sulfobromophthalein retention and rise in serum albumin concentration were usually noted. This form of therapy for portal hypertension may be an alternative to surgical treatment in suitable patients if future study shows that as good or better results accrue.

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IMPROVED APPROACH FOR POSTERIOR UPPER THORACIC SYMPATHECTOMY

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The still popular and standard procedure for posterior upper dorsal sympathectomy was designed and described by Adson,[1] first in 1929 and again in 1931. Experimenting with midline, transverse, and hockey-stick skin incisions only to discard them, he finally adopted the well-known oblique paramedian skin incision. Irrespective of the site, incision is continued down only to the trapezius fascia, followed by undesirable division and separation of the large upper back muscles away from the midline to expose several centimeters of ribs and transverse processes. A large extent of rib and its entire transverse process must then be removed to permit the necessary additional excision of the resected rib neck and head. Distant from the midline, the parietal pleura is intimately applied to the ribs, intercostal muscles, and fascia; the intercostal neurovascular bundles are fixed in the concave costal surfaces, and the superior intercostal artery can occasionally become a problem.

These various architectural obstacles combine to make extensive exposure of the sympathetic chain, positioned immediately subjacent to the rib heads, an awkward, time-consuming, and perilous task. The needless gross muscle division and separation, which has always disturbed me, is also the source of the distressing and prolonged postoperative upper back discomfort almost routinely encountered by the patient, especially when sympathectomy is done on both sides. Other methods of sympathectomy are even more objectionable. The Schulze and Goetz axillary approach via the second intercostal space [2] is equally formidable and needlessly extensive, as are other transpleural procedures, especially when dealing with cardiac problems. Gaza's intercostal space ganglionectomy after transversectomy without rib resection [3] does not provide adequate visualization. Foerster's intradural operation and Guleke's extradural dorsal ramicotomy [3] are both unjustifiably hazardous and subefficacious. Although I was one of Adson's pupils, I have found his operation onerous and too time-consuming. Postoperative complications were too frequent and the morbidity too high for complacence and satisfaction. Accordingly, in October, 1951, I attempted the most direct approach to the upper dorsal paravertebral space and its contained sympathetics that I could conceive. Consisting of a limited upper dorsal costotransversectomy, via a midline laminectomy type of exposure, it proved so simple, speedy, and satisfactory in every regard that it was used in 14 other upper dorsal sympathectomies by myself and my late associate Paul G. Flothow, who previously commented on this technique.[4]

ANATOMIC CONSIDERATIONS

Anatomically, the most direct route to the dorsal sympathetics is via a midline laminectomy type of ex-

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Read before the Neurosurgery Section of the sixth Pan-Pacific Surgical Association Congress, Honolulu, Hawaii, Oct. 15, 195[illegible].

[1] Adson, A. W., and Brown, G. E.: Treatment of Raynaud's Disease by Resection of Upper Thoracic and Lumbar Sympathetic Ganglia and Trunks, Surg., Gynec. & Obst. 48:577-603, 1929. Adson, A. W.: Cervicothoracic Ganglionectomy, Trunk Resection and Ramisectomy by Posterior Intrathoracic Approach, Am. J. Surg. 11:22[illegible]-232, 1931.

[2] Atkins, H. J. B.: Sympathectomy by Axillary Approach, Lancet 1:538-539, 1954.

[3] Thorek, M.: Modern Surgical Technic, ed. 1, Philadelphia, J. B. Lippincott Company, 1938, vol. 2, p. 557.

[4] Flothow, P. G.: Sympathectomy for Cardiac Decompensation and Coronary Disease, Surgery 32:796-802. 1952.

posure (fig. 1) for unilateral or bilateral sympathectomy at either one or two operations. Manifestly, but a portion of the transverse process and underlying rib neck need be removed. Two incisions are avoided, cutting and retraction of the large back muscles are obviated, lengthy extent of rib need not be sacrificed, the sympathetic chain is remarkably apparent medial to the ventrad pleural reflection, and depression of the pleura with a lighted retractor is totally unnecessary. Illumination is excellent under ordinary operating room conditions, and the procedure is quickly and comfortably completed under direct vision rather than by a struggle laterally under a virtual overhang or shelf of tissue. The sympathetic chain is so accessible that the operator is at first likely to remove it in part when biting away the rib necks, not realizing its proximity (fig. 1). Although no precedent for this approach appears in the literature the orthopedists understandably overlooked this relationship in devising costotransversectomy drainage of tuberculous spinal abscesses. Neurosurgeons have likewise ignored this path to the sympathetics when performing similar procedures for the removal of dumbbell spinal tumors.

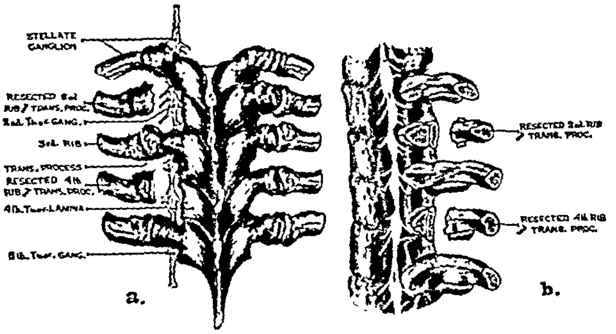
STELLATE GANGLION
RESECTED 2nd RIB & TRANS. PROC.
2nd. THOR. GANG.
3rd. RIB
TRANS. PROCESS
RESECTED 4th RIB & TRANS. PROC.
4th. THOR. LAMINA
5th. THOR. GANG.
a.
RESECTED 2nd RIB & TRANS. PROC.
RESECTED 4th RIB & TRANS. PROC.
b.

Fig. 1.—*A*, dorsal aspect of upper thoracic spine as seen at operation, illustrating limited costotransversectomy and accessibility of the sympathetics. *B*, oblique view, showing extent and location of rib and transverse process resection.

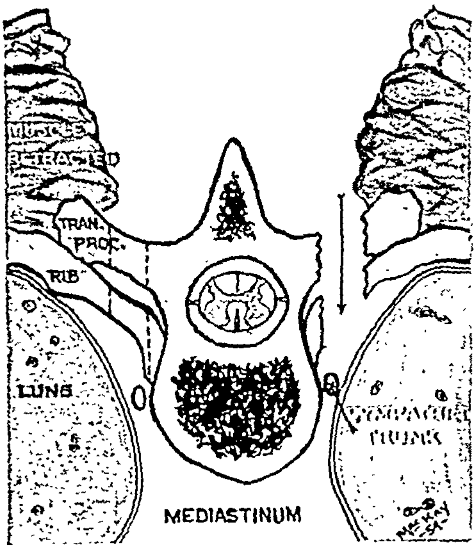

Fig. 2.—Cross sectional view of thorax at level of second rib, showing direct posterior approach to the upper thoracic sympathetics via a limited costotransversectomy and midline laminectomy type of exposure.

TECHNIQUE

It makes little or no technical difference whether sympathectomy by this approach is performed in the upright or face-down laminectomy position insofar as ease and comfort are concerned. I personally insist on the upright sitting position, however, in the firm and definite conviction that persons with cardiac disease, in particular, are thus given every physiological advantage. If such facility is not available, a lateral or oblique modified Sim's position is preferable to the usual full face-down position, which should never be used for a patient with heart disease.

A midline incision is centered over the second thoracic vertebral spine when sympathetic denervation is contemplated for upper extremity vasospastic conditions via resection of the second or third transverse process and rib for the Smithwick procedure, recalling that the second is the first palpable rib. If more extensive denervation for cardiac lesions is intended, incision is extended downward to the fourth or fifth thoracic spine. A typical subperiosteal exposure of the appropriate vertebral spines and laminas is done in the usual manner, on one or both sides. This maneuver is continued laterally, as for routine laminectomy, to the point where the bulbous tips of the transverse processes commence their dorsad upsweep (fig. 1*A* and 2), exposing the longitudinal gutter formed by the laminas and articular facets medially and the transverse processes laterally.

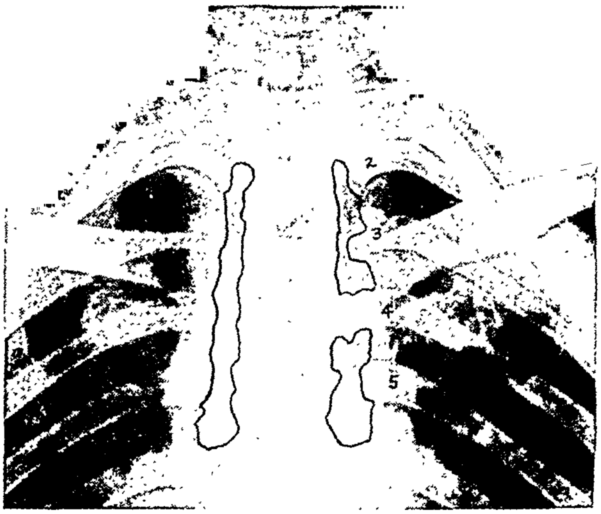

Fig. 3.—Postoperative thoracic spine, showing resection of four ribs and transverse processes on left and three on the right in patient with disabling coronary pain.

The root or stem of the transverse process, which is about 1 cm. in extent, is removed with an angular cranial rongeur, thereby uncovering the neck and head of the underlying rib medial to its articulation with the tip of the transverse process (fig. 2). In this plane, the ventrad reflection of the pleura has already begun and the intercostal neurovascular bundles are not yet intimately associated with the ribs. Nevertheless, as the transverse process is removed, the areolar tissue will be seen to rise and fall between the rib necks with each excursion of the underlying lung, but the pleura itself remains a safe distance removed. The intercostal, intertransverse, and costotransverse ligaments are quickly, easily, and safely stripped from the rib neck with a sharp curved periosteal elevator. Removal of 1 cm. of rib neck, leaving the articulating portion of the rib head in situ, immediately exposes the sympathetic chain, which is not adherent to the vertebral bodies at this level. Additional working space is unnecessary, but, if it is desired, more rib and transverse process can be readily removed medially witn a Kerrison rongeur or a Gilpi perineal retractor can be positioned between the rib end and lamina. It is even quite possible to remove the sympathetics without removing any rib whatever, but this procedure does not adhere to sound surgical principles.

This technical presentation is not concerned with the indications for, nor the actual extent of, upper thoracic sympathectomy. I follow the Smithwick preganglionic procedure via the second or third rib for vasospastic conditions of the upper extremity, except for ligating and dividing the second and third intercostal nerves central to the thoracic root ganglions in lieu of avulsing the roots intrathecally. A short vertical midline or transverse incision leaves minimal traces, which women appreciate. Removal of ganglions T-1 through T-5 (or T6) bilaterally for anginal pain and/or decompensated hearts is necessary and easily accomplished by resection of the second and fourth transverse processes and ribs. The individual operator may also choose to remove the transverse process and rib of T-3 rather than work the sympathetic chain upward beneath it, although this can readily be done. If the removal of ganglion T-6 is also intended, it is better to resect part of the second, all of the third, and all of the fifth processes and ribs. Resection of any or all processes and ribs is permissible, and the amount resected varies with the surgeon (fig. 3). It is occasionally possible to remove the entire stellate (vertebral) ganglion via the second transverse process and rib, provided that gentle traction on the sympathetic trunk delivers it into the upper part of the exposure. The vertebral artery will then be visible anterior to the ganglion, clasped by its tentacle-like rami.

Closure is completed by anatomic approximation with interrupted silk sutures as for any upper thoracic laminectomy. There has been but a single instance of wound disruption in an early case in which catgut was used; the disruption was due to the patient's self-violence during a brief postoperative psychotic episode.

COMMENT

This is a virtually bloodless procedure possessing the main advantages of speed, directness, accessibility of the sympathetics, and avoidance of hazards and morbidity. In serious cardiac conditions, extensive bilateral sympathectomy performed with the greatest facility in the shortest time is of the essence. This is routinely accomplished by the described method in half the time (or less) required for unilateral denervation of but the upper three thoracic ganglions by the Adson approach.

In addition to the more obvious benefits and advantages of this new route, the patient is spared prolonged anesthesia, sustains less trauma, has a single midline incision, and enjoys early mobilization (one to two days) and discharge, which is currently of great economic importance. For me, this procedure is a pleasure rather than a chore, spares time and trauma to patient and surgeon alike, and thus far has not revealed any disadvantages.

Although this approach allows cervicothoracic sympathectomy, the anterior approach remains speedier, easier, and less traumatizing for removal of the stellate ganglion alone or for combined removal of the stellate ganglion and postganglionic resection of the second and possibly the third thoracic ganglions. This is especially true when a modification of the usual anterior approach is used.

SUMMARY AND CONCLUSIONS

A new and improved posterior approach to the upper thoracic sympathetics, used for unilateral or bilateral upper thoracic sympathectomy, has the following advantages: (1) single midline incision and laminectomy type of exposure without muscle division; (2) minimal transverse process and rib resection; (3) direct access to the sympathetic chain medial to the pleural reflection with excellent visibility by ordinary surgical lamps; (4) wound quickly and securely closed; (5) bloodless procedure without intrathoracic complications; (6) operating time decreased by at least 50%; (7) less trauma to the patient by conservation of time, tissue, blood, and anesthesia; (8) greatly diminished postoperative morbidity, allowing earlier ambulation and shorter hospitalization.

While no distinct disadvantage is known, postganglionic cervicothoracic sympathectomy by the modified anterior approach is preferable. This described technique has proved eminently satisfactory and gratifying in 14 cases of posterior upper thoracic sympathectomy (5 unilateral and 9 bilateral, eight patients with heart disease, four with Raynaud's disease, one with causalgia, and one with Ménière's disease).

1317 Marion St. (4).

Multiple Polyposis of the Colon.—[This condition is] characterized by the occurrence of numerous polyps throughout the colon and/or rectum. The polyps usually make their appearance during the first and second decades of life, but occasionally may not arise until the fourth decade or possibly even later. Although the polyps themselves may be associated with symptoms referable to the large bowel, the disease is of clinical significance primarily because of the tendency of one or more of the polyps to become malignant, with death from carcinoma of the colon or rectum at a relatively early age. The disease has long been known to have a familial distribution. . . . Approximately 10 per cent of all adults can be demonstrated by combined sigmoidoscopic and X-ray studies to possess one or more polyps of the colon. However, only a small fraction of these persons has true multiple polyposis. When appropriate diagnostic studies are carried out, there is seldom any problem involved in differentiating between the person who has hundreds or even thousands of polyps—and has multiple polyposis—and the person who has two or three, or even five polyps, but does not have the multiple polyposis with which this study is concerned. The two diseases with which multiple polyposis can most readily be confused are the so-called Peutz-Jeghers syndrome of diffuse intestinal polyposis and abnormal pigmentation, and the syndrome of polyposis of the colon associated with osteomatosis and fibromatosis. Both of these diseases are apparently much rarer than classical multiple polyposis.—T. E. Reed and J. V. Neel, M.D., A Genetic Study of Multiple Polyposis of the Colon, *The American Journal of Human Genetics*, September, 1955.

SCIENTIFIC BASIS FOR THE SURGICAL TREATMENT OF CORONARY ARTERY DISEASE

Claude S. Beck, M.D.
and
David S. Leighninger, M.D., Cleveland

To understand the scientific basis for the surgical treatment of coronary artery disease it is necessary to analyze information obtained by experiments on dogs. One of us (C. S. B.) and his associates have done about 5,000 operations on the coronary blood vessels in the last 23 years, and these are the basis for this presentation. There are several variables inherent in this work, and it is appropriate here to state that these must be properly taken care of, otherwise erroneous conclusions will be made. A report on much of this experimental work has been published in The Journal.[1] In these experiments the reduction in coronary artery inflow was produced by placing ligatures around the coronary arteries. In the human, arteriosclerosis produces reduction in coronary artery inflow. The net result is reduction in arterial inflow. This is not a study of arteriosclerosis. Even if this disease could be produced experimentally in adequate numbers of dogs the occlusion probably could not be localized nor could the degree of occlusion be controlled with the precision demanded by the experiment, and as a method of investigation it would be inferior to the ligature.

The surgical treatment of coronary artery disease is based upon four considerations. 1. Operation adds 4.7 cc. of blood per minute (282 cc. per hour) to an area of myocardium made ischemic by complete ligation of the artery that normally feeds this muscle. This quantity of blood is of little or no significance if it is delivered to myocardium that is fed by a normally patent artery or if the artery is occluded by three-fourths of its diameter. But if the artery is totally occluded then this quantity of blood is protective. When the circumflex artery is ligated in a normal dog the average amount of blood available to the muscle beyond the ligature is 3.8 cc. per minute. Operation adds 4.7 cc. to this quantity, making an average total of about 8.5 cc. per minute. 2. This quantity of blood accomplishes three favorable results: It reduces mortality following test coronary artery occlusion, it likewise reduces the size of the infarct in these dogs that live following the arterial occlusion, and it provides time for additional blood to run into this low pressure area of occlusion from adjacent high pressure areas of myocardium. In a few days this ischemic but viable myocardium begins to contract. In 24 dogs the average amount of blood available to the myocardium beyond the ligature was 62 cc. per minute. 3. Of all the people who die of coronary artery disease about 90% die because the heart becomes electrically unstable. The hearts in these people are capable of continued function under slightly altered circulatory conditions, and these are the patients who can be helped by surgical operation. The remaining 10% of the patients who die from coronary artery disease have extensive myocardial degeneration, and these patients die in circulatory failure. Little or nothing can be accomplished by surgical operation in these patients (fig. 1). 4. The transfer of this information from the laboratory to the human patient is being made without conflict in the science.

ELECTRICALLY STABLE AND UNSTABLE HEARTS

An electrically stable heart is a uniformly well oxygenated heart. Emphasis is placed upon the uniformity of oxygen tension throughout the myocardium (fig. 2*A*). Stability persists when the oxygen tension is reduced provided the reduction is uniform throughout the myocardium. A uniformly cyanosed heart is also a stable heart, as indicated by observations made in our laboratory on about 60 dogs in which the intratracheal tube was clamped off for periods of six to nine minutes. The heart in these experiments became increasingly cyanosed; it dilated; the beat became weak, and then it stopped in standstill. *In none of these experiments did* the heart fibrillate. When oxygen was again delivered into the lungs and the heart massaged a few times a strong vigorous beat was restored. Thus the mechanism

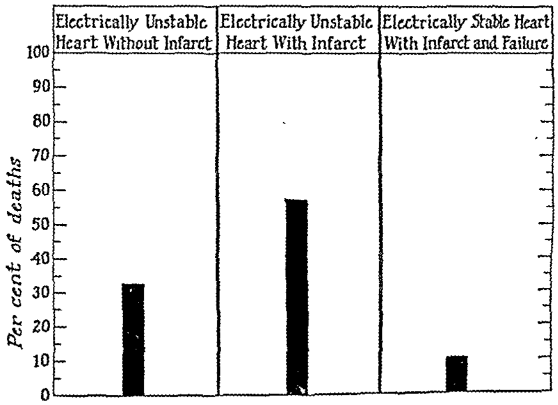

Fig. 1.—One-third of all victims of coronary artery disease have no infarct, either old or recent, according to Yater.[4] In this group, column 1, the hearts became electrically unstable. Approximately 10% of all victims die of circulatory failure. In this group, column 3, the currents incidental to progressive occlusions were never strong enough to fibrillate the heart and stability was maintained from one occlusion to another until failure supervened. Of the remaining 57%, column 2, both muscle damage and instability were present, and, in many of these specimens, the destruction of muscle was not so great but that continued function would have been possible were it not for the electrical potentials that destroyed the coordinated mechanism. In the first group of patients there was no muscle damage, and continued function was possible in this group, provided the heart remained electrically stable.

From the Western Reserve University School of Medicine and the University Hospitals.

Read before the Section on Surgery, General and Abdominal, at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

This work was supported by grants from the United States Public Health Service and the Cleveland Area Heart Society.

The burs used in the number 1 operation are made by Kapp Surgical Works, 2004 St. Clair Ave., Cleveland.

[1] Beck, C. S., and Leighninger, D. S.: Operations for Coronary Artery Disease, J. A. M. A. 156: 1226 (Nov. 27) 1954.

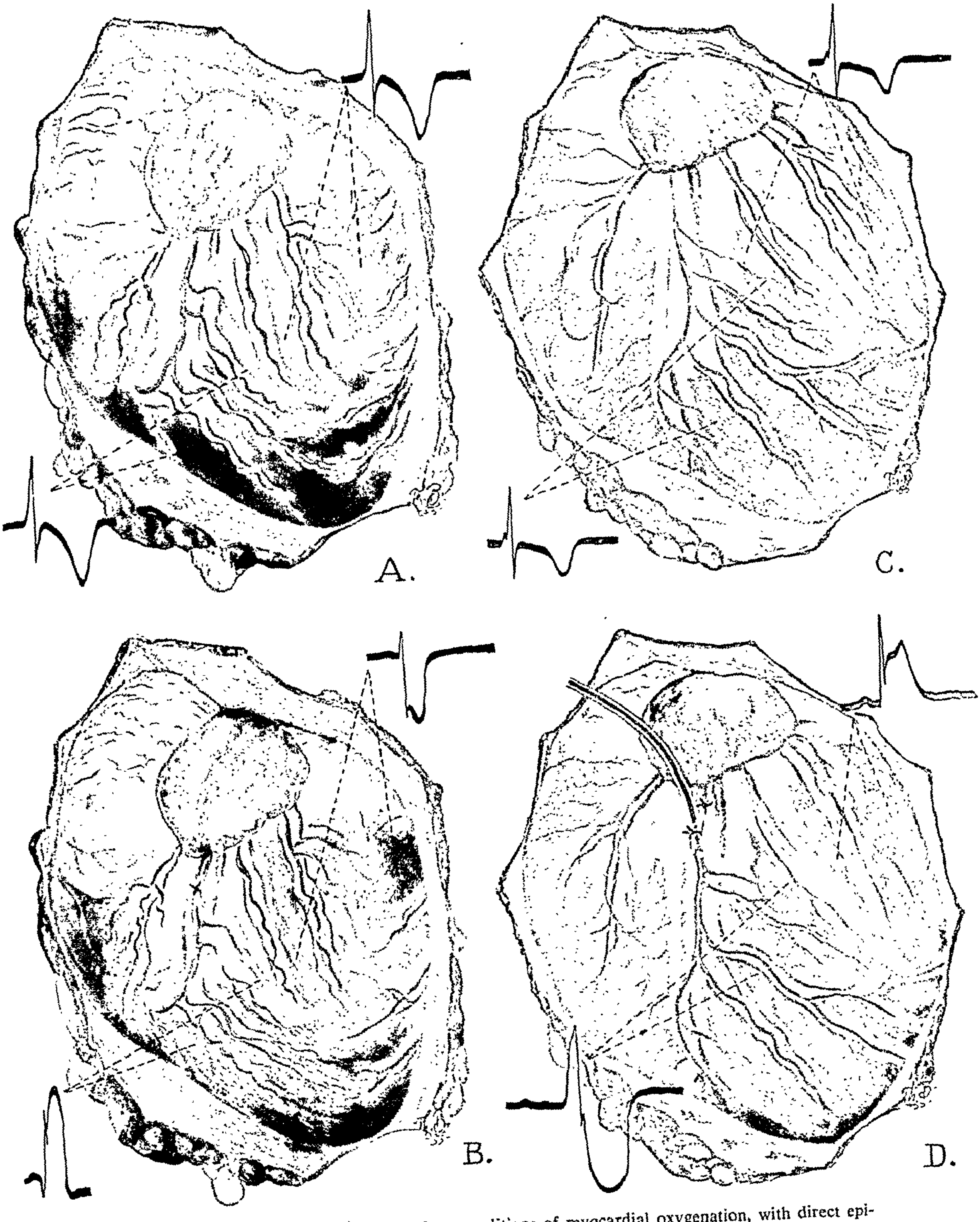

Fig. 2.—Dog hearts illustrating four conditions of myocardial oxygenation, with direct epicardial electrocardiograms demonstrating measurement of electrical potentials. *A* and *C* are the same heart; the one is uniformly well oxygenated, and the other is uniformly and severely cyanosed. These hearts are electrically stable as shown by the isoelectric S-T segment in each condition. *B* and *D* are electrically unstable because the oxygen *tension* in each heart is not uniform throughout. The S-T segment is depressed over the pink or well-oxygenated myocardium and elevated over the blue or cyanosed myocardium. These differences in potentials are often strong enough to fibrillate the heart. The term "current of oxygen-differentials" is introduced to replace "current of injury," which is obviously incorrect. A uniformly cyanosed heart is not an injured heart.

remained coordinated as the heart changed in color from pink to blue and back again to pink. Direct epicardial electrocardiograms taken from the surface of the uniformly pink and the uniformly cyanosed heart are shown in figure 2*A* and *C*. The heart becomes electrically unstable and may fibrillate when the oxygen tension is not uniform throughout the myocardium. Thus a cyanosed area surrounded by well-oxygenated myocardium or a well-oxygenated area surrounded by cyanosed myocardium are conditions that produce electrical instability. These conditions are produced experimentally by ligation of one or more coronary arteries in a well-oxygenated heart and by delivery of pink (arterial) blood through a catheter in a coronary artery in a deeply cyanosed heart. The appearance of these two types of trigger and the electrical potentials from the surface of these hearts are shown in figure 2*B* and *D*. These differences in electrical potential from pink and blue areas measure 5 to 20 mv.[2] They are produced at the precise plane of contact between blue and pink and pink and blue muscle. They are produced by differences in oxygen tension, and we use the term oxygen differential to refer to this phenomenon. The term "current of injury" has been commonly used to refer to currents produced by ligation of a coronary artery, but this term is probably not correct. The terms stable and unstable heart are also of recent origin and seem to have a place in cardiac nomenclature.

No doubt the amount of current and the voltage produced under experimental conditions vary in different dogs. The same current may fibrillate the heart in one dog and fail to do so in another. In different dogs and under different conditions there appears to be a difference in what might be referred to as the threshold for fibrillation. The threshold for fibrillation is lowered by hypothermia in the absence of coronary artery occlusion, and in a series of experiments in which the descending ramus of the left coronary artery was ligated the heart fibrillated in every experiment, whereas under normal temperatures the incidence of fibrillation was 50%.[3]

Electrical instability leads to fibrillation and death in a large number of people. The classic example of this occurs in the man who goes out and shovels snow and in a few moments is dead. The exercise improves oxygenation of myocardium everywhere except in an area supplied by a coronary artery that is not normally patent although it may not be completely occluded. In some instances the arterial disease is slight. Under these conditions an oxygen differential is produced that in turn produces sufficient current to fibrillate the heart. Had this man remained indoors without this vigorous exercise the circulation of red blood into the myocardium would have been less brisk; the heart under conditions of rest would have been less pink; and the oxygen differential probably would not have produced sufficient current to have fibrillated the heart. To society the loss produced by these currents is incalculable. These currents occur in people who could live productively provided small alterations were present in the coronary artery circulation. One-third of all victims of coronary artery disease have no damage in the myocardium, either old or recent,[4] and many of the remaining two-thirds have heart muscle that probably could continue to function for years were it not for these currents. In about 10% of the victims of coronary artery disease these currents were never severe enough to fibrillate the heart; the patient continued to live, and the occlusive disease advanced to the point where extensive damage and failure occurred. It appears then that oxygen differentials of a fatal nature can be produced in the absence or in the presence of myocardial destruction. It also appears that myocardial destruction can proceed to the stage of failure without producing currents strong enough to fibrillate the heart. The production of currents and the destruction of muscle are both related to oxygen, but they are different biological processes. The purposes of surgical operation are to reduce these currents and to preserve viability of muscle although the occlusive process may proceed later on even to the point of cardiac failure.

SURGICAL OPERATIONS

The principles for aiding a crippled coronary circulation were previously presented in THE JOURNAL.[1] According to our experience the most important aid is provided by the presence of intercoronary arterial communications, so that a red blood cell entering the descending ramus or one of its branches can get over to the circumflex ramus or one of its branches, where it fulfills a more important function. The addition of blood from outside sources is less effective than the distribution of blood that is already in the coronary system. We tried to add blood to the heart in many different ways, one of which was to enter it through the coronary sinus system of veins in a retrograde direction. This method provides the greatest amount of protection of all methods that we tested, but retrograde flow tapers off in the dog after six to eight weeks and is replaced by a protective set of intercoronary channels. Whether retrograde flow tapers off in the presence of coronary artery-inflow disease in the human patient cannot be stated at this time. Other sources of flow from the outside, such as from parietal pericardium, mediastinal fat, lung, internal mammary arteries, chest wall, omentum, spleen, and intestine grafted upon the heart, are yet to be measured.

Considerable work on this subject has been done, and anatomic channels large enough to carry blood have been demonstrated between graft and coronary arteries, but so far measurements of flow have not been done. No doubt these measurements will be made, because methods for measurement are available and some of these surgical procedures may be found to be effective. For the present we have laid aside the operation that diverts arterial blood into the coronary sinus system of veins because the long-term condition of the circulation in the human heart will not be known until a number of specimens are examined. This operation is technically difficult. It requires two stages. It has a definite mortality and also some side-effects from the arteriovenous fistula produced by the operation. However, as stated above, it produces the greatest amount of benefit, and we might apply it in those patients who still have pain after the number 1 operation has been used.

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[2] Brofman, B. L.; Leighninger, D. S., and Beck, C. S.: Electrical Instability of the Heart: A New Concept in Coronary Artery Disease, to be published.

[3] Selman, M. W., and Brofman, B. L.: The Effect of Hypothermia on Survival Rates Following Coronary Occlusion in Dogs, Surgery **37:** 707 (May) 1955.

[4] Andrus, E. C., and others: Coronary Artery Disease, M. Ann. District of Columbia **20:** 313 (June) 1951. Yater, W. M., Beck, C. S., Leighninger, D. S., and Brofman, B. L.: Symposium on Coronary Arterial Disease, Am. Rev. Tuberc. **71:** 904 (June) 1955.

The Number 1 Operation.—The number 1 operation consists of the following steps. 1. The lining of the parietal pericardium and the surface of the heart are abraded or roughened by special burs. This produces mechanical trauma, which in turn produces inflammation and intercoronary arterial channels. We experimented with necrotizing chemicals for the removal of epicardium, but no satisfactory chemical agent has been found, and strong chemicals such as carbolic acid should not be used. 2. Application of 0.2 gm. of coarsely ground asbestos is made to the entire surface of the heart. This produces mild inflammation, which persists for a period of months and which in turn produces intercoronary arterial channels. We experimented with many different inflammatory agents, and asbestos is the most effective agent. 3. The coronary sinus is occluded to a diameter of 3 mm. Ligation of this vein is not beneficial when the arterial circulation in the heart is normal because it reduces arterial inflow, but when a major coronary artery such as the circumflex is occluded then ligation of the sinus affords protection against loss of coordinated mechanism, and it also provides for greater absorption of oxygen from the blood in the occluded vascular bed.[5] Ligation also aids in the development of intercoronary arterial channels. 4. Parietal pericardium and mediastinal fat is applied to the surface of the heart. This grafted tissue stimulates the development of intercoronary arterial channels and in some instances probably becomes the source of additional blood to the heart.

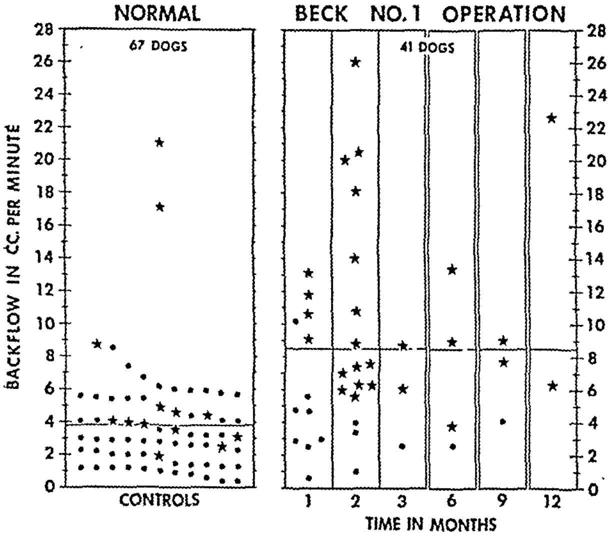

Fig. 3.—Mautz-Gregg backflow measurements in normal control dogs and in dogs upon which number 1 operation was done. Average in 67 normal dogs was 3.8 cc. per minute and in 41 dogs in which the number 1 operation was done was 8.5 cc. per minute. This increased backflow was present one year after operation. Star indicates that electrocardiographic evidence of protection was present, and solid circle indicates it was absent.

This operation has been well tested in the experimental laboratory. The protection of the number 1 operation in terms of mortality and size of infarct has been reported.[1] In normal dogs the mortality following complete ligation of the descending ramus of the left coronary artery at its origin in one step was 70%. In 30 dogs in which the number 1 operation was done and sometime thereafter the same artery was ligated, the mortality was 26.6%. This is a reduction of 43.4% produced by the operation. The hearts in each group that survived test artery ligation were examined and the size of the infarct measured. In the hearts that were protected by operation the infarct was 60 to 70% smaller than in the control group. In some specimens there was no gross infarct, and this was never observed in a specimen of the control group.

Backflow.—The Mautz-Gregg method of backflow yields important information and was used in many experiments.[6] This method consists of ligation of either the circumflex ramus or the descending ramus of the left common coronary artery. One of these vessels is ligated proximally and cut distal to the ligature. The amount of blood from the cut artery is the backflow. A third measurement of protection, which has also been reported,[1] consists of the response made by the circulation *after test artery ligation, provided the animal lived and* the heart muscle was not destroyed by the ischemia. Backflow measurements made in an artery that was occluded one day were 10.8 cc. per minute; two days, 42.0 cc.; three days, 68.0 cc.; and six days, 20.0 cc.; the average up to four months in 24 dogs was 62.1 cc. per minute. The important consideration here is the fact that 4.7 cc. per minute of additional blood provided by operation carried the dog over the crisis of the arterial occlusion and also preserved the viability of myocardium. Under these conditions additional blood ran into the ischemic, low-pressure myocardium from adjacent myocardium where the pressure was higher, and later on this ischemic but viable myocardium had sufficient blood *supply to restore contractility to this area of myocardium.*

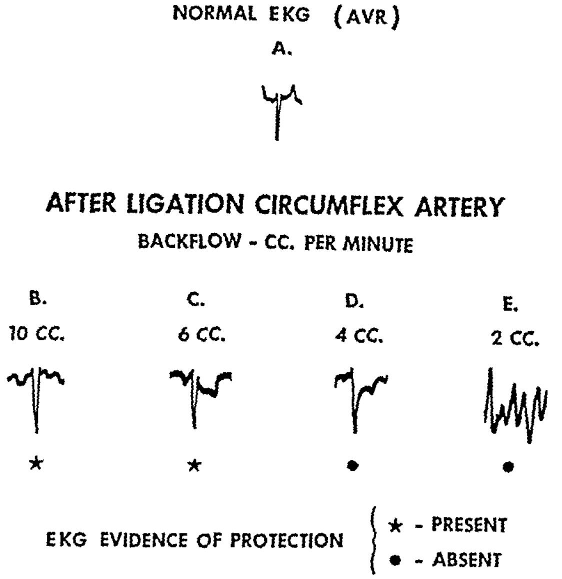
NORMAL EKG (AVR)
A.
AFTER LIGATION CIRCUMFLEX ARTERY
BACKFLOW - CC. PER MINUTE
B.
10 CC.
C.
6 CC.
D.
4 CC.
E.
2 CC.
★
★
●
●
EKG EVIDENCE OF PROTECTION
★ - PRESENT
● - ABSENT

Fig. 4.—Relationship between electrocardiogram and Mautz-Gregg backflow.

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[5] Gregg, D. E.: Coronary Circulation in Health and Disease, Philadelphia, Lea & Febiger, 1950.

[6] Mautz, F. R., and Gregg, D. E.: The Dynamics of Collateral Circulation Following Chronic Occlusion of Coronary Arteries, Proc. Soc. Exper. Biol. & Med. 36: 797 (June) 1937.

Recent measurements obtained by one of us (D. S. L.) are presented in figure 3. In 67 normal dogs the average backflow was 3.8 cc. per minute. After the number 1 operation was done the backflow in 41 dogs was 8.5 cc. per minute, or an increase of 4.7 cc. This increase in backflow was found one year after operation, so that the improvement is probably of a permanent nature. The relationship between backflow and electrocardiogram is shown in figure 4. Any quantity of blood added to that which is already present is protective. When the total quantity of backflow is 6 to 10 cc. per minute the electrocardiogram shows S-T segment depression less than 2 mm. and is indicated by a star. When the total backflow is 2 to 4 cc. per minute it shows greater S-T segment depression or the heart may fibrillate, and this is indicated by a solid circle. The various components of the number 1 operation were measured, and these are shown in figure 5. Each component contributes something to the backflow.

Thompson[7] advocated the introduction of 4 to 6 gm. of talc into the pericardial cavity for the treatment of coronary artery disease, and backflow in such experiments is given in figure 6. The average backflow in 20 dogs was 4.8 cc. per minute. This figure is 1.0 cc. greater than the average normal but is 3.7 cc. less than obtained in the number 1 operation. Vineberg[8] implanted the internal mammary artery into the myocardium of the left ventricle for the treatment of coronary artery disease. This artery is ligated and severed, but an intercostal branch is left open. The artery is placed in a tunnel in the myocardium with the expectation that branches will develop from it and these branches will connect with the smaller branches of the coronary arteries. Backflow measurements were made, and the results are shown in figure 6. The average backflow in 20 dogs was 3.9 cc. per minute. This operation did not increase backflow measurements over the normal, and the measurements were about the same with the mammary artery occluded by clamping or not occluded. In these experiments there was no increased backflow even from intercoronary arterial channels. When the artery was severed the proximal end bled freely but the distal end yielded either no blood or less than one drop per minute. Vineberg stated that the implant should be made into ischemic myocardium for anastomoses to develop, and that was not done in these experiments.

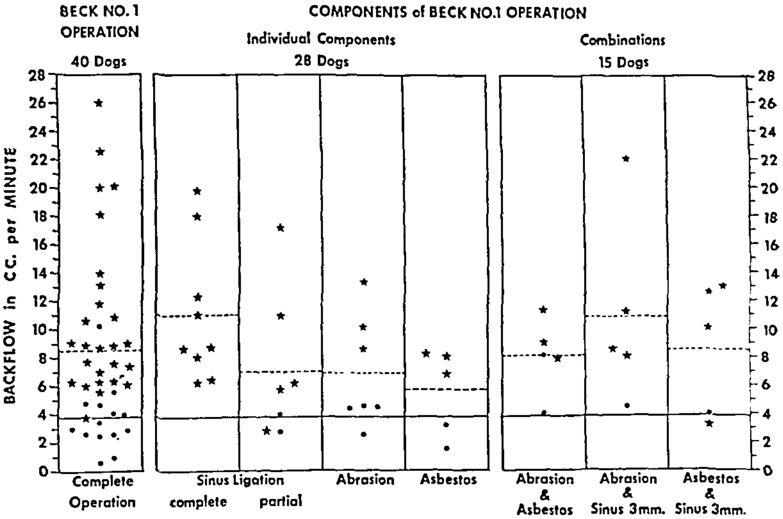

Fig. 5.—Mautz-Gregg backflow and various components of number 1 operation. Solid horizontal line indicates the average normal backflow. Broken lines indicate average backflow in each procedure. Each procedure adds something to backflow.

OPERATION ON PATIENTS

The patient is given 0.6 mg. of atropine sulfate and 10 mg. morphine sulfate one-half hour before being moved to the operating room and in the operating room is given 50 mg. of diphenhydramine (Benadryl) hydrochloride intravenously together with 0.4 gm. of thiopental (Pentothal) sodium and 60 mg. of succinylcholine chloride. He is given 100% oxygen for three to six minutes, and he is then intubated with a properly fitting cuffed endotracheal tube. Ether and oxygen are then given, and respiration is assisted until he breathes on his own. The next step is the intravenous administration of 10.5 mg. of tubocurarine chloride. The Rand-Wolfe mechanical respirator is used and is recommended. Nitrous oxide and oxygen, 5 liters of each, making a flow of 10 liters per minute, are given. A little ether is given, but usually curare and nitrous oxide maintain the anesthesia. The amount of ether used is about 2 to 3 oz. (60 to 90 cc.) per patient. We do not use rebreathing.

The drugs used are as follows: pentobarbital (Nembutal) sodium, 0.2 mg., given the night before operation; digitoxin (Crystodigin), 0.1 mg., given just before the patient is moved to the operating room; and desacetyllanatoside C (Cedilanid-D), 0.2 mg. given intravenously if the heart rate is over 110 beats per minute. This is repeated if necessary, or 0.4 mg. may be given in one dose. This digitalis preparation for intravenous use is an important aid in slowing the heart rate, and its use should not be overlooked. It requires 20 minutes to become effective. Atropine in doses of 0.2 to 0.4 mg. is given intravenously for nodal rhythm. Procainamide (Pronestyl) hydrochloride, 100 mg. diluted 10 times in saline solution, is given intravenously for ventricular extrasystoles. Tachycardia and S-T segment changes in the electrocardiogram are treated by stopping the operation for several minutes and oxygenating the lungs well. The lungs should come up well and then relax with each respiration. If the blood pressure falls, mephentermine (Wyamine) sulfate, 7.5 mg., is given intravenously and twice this amount is given intramuscularly.

The patient is placed on his right side with the left side up. If the blood pressure falls below 90 mm. Hg the operation is not started. Time is taken to observe the blood pressure. If the pressure remains below 90 mm. Hg for the next half-hour, the operation is not done

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7. Thompson, S. A., and Plachta, A.: Fourteen Years' Experience with Cardiopexy in the Treatment of Coronary Artery Disease, J. Thoracic Surg. **27**: 64 (Jan.) 1954.

8. Vineberg, A.; Munro, D. D.; Cohen, H., and Buller, W.: Four Years' Clinical Experience with Internal Mammary Artery Implantation in the Treatment of Human Coronary Artery Insufficiency Including Additional Experimental Studies, J. Thoracic Surg. **29**: 1 (Jan.) 1955.

and the patient is not acceptable for operation. By experience we learned to regard this as a rule not to be broken.

The incision is placed between the sixth and seventh ribs, extending from a point about 8 cm. from the midline in front to a point about 6 cm. from the midline in back (fig. 7). The ribs are spread apart by a self-retaining retractor for a distance of 12 to 14 cm. The pericardium is opened by an incision from apex to base about 4 cm. to the right of the left phrenic nerve. Traction sutures are placed in the pericardium and held up by the weight of a hemostat. The lining of the parietal pericardium is abraded everywhere by special burs. Another incision is made parallel to the first incision but to the left of the nerve, and a third incision splits the pericardium at right angles down to the coronary sinus. Traction sutures are applied to the cut edges of the pericardium (fig. 8). Exploration of the myocardium and coronary vessels is carried out. The common left coronary artery is lightly palpated by the right index finger. This vessel is normally patent, thickened but pulsatile, or it may be calcified. The descending ramus is palpated, as is also the first part of the circumflex ramus. The branches of these vessels are observed as to pulsation, beading, or streaking. The myocardium is observed for the presence of an infarct. The infarct is observed for size, location, and paradoxical pulsation. The coronary sinus is observed.

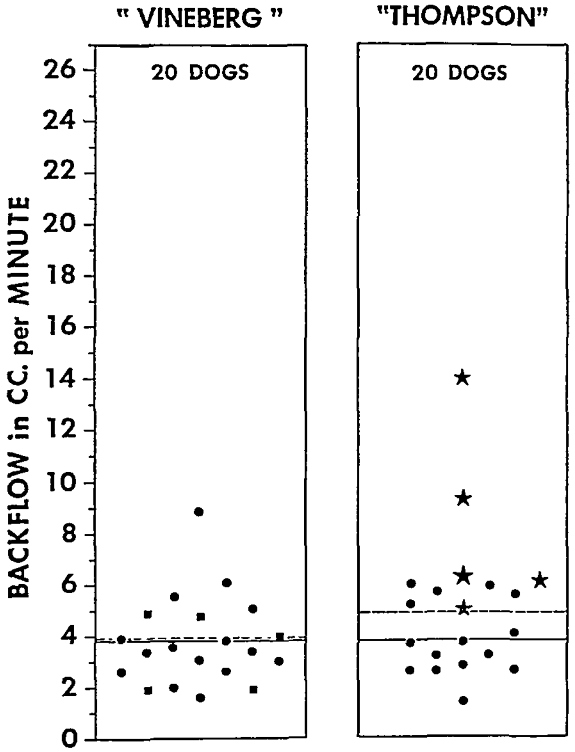

Fig. 6.—Mautz-Gregg backflow measurements in two groups of dogs. In one group the Vineberg procedure was done. Average backflow was 3.9 cc. per minute; in normal dogs it is 3.8 cc. per minute. In the other group the Thompson procedure was done. Average backflow was 4.8 cc. per minute, which is 1 cc. greater than normal.

A point is selected between the middle and posterior veins of the ventricle. The epicardium just below the sinus is nicked with scissors, and a small opening is made and the tissues are gently spread with the point of a hemostat, separating the sinus slightly from its bed. A curved needle that contains silk is passed directly into the right auricle parallel to the sinus. This curved needle is then turned 90 degrees so that the point comes out of the auricle just superior to the sinus (fig. 9). The circumflex artery lies close to the passage of the needle, but with care it can always be missed. The ligature is tied around the sinus plus a stilet 3 mm. in diameter. The stilet is removed and partial occlusion of the sinus is accomplished (fig. 10). This ligation is done after the surface of the heart is abraded (fig. 11) and also after 0.2 gm. of coarsely ground asbestos is applied to the surface of the heart (fig. 12). The mediastinal fat is then brought into contact with the heart over as wide an area as possible, and the pericardium is loosely closed (fig. 13). A drainage tube is placed in the left pleural cavity and attached to a water-seal. If a cartilage is broken, it is carefully wired together. The sixth and seventh ribs are sutured with a wire. The soft parts are closed with silk. The patient is given oxygen intranasally or is placed in an oxygen tent for 24 hours and ambulation is started. The patient is discharged in about two weeks.

INDICATIONS FOR AND LIMITATIONS OF OPERATION

Operation is indicated in the treatment of coronary artery disease. Any patient in whom the diagnosis of this disease is established is a candidate for operation provided the disease has not advanced to the point where the risk of operation is too great. Diagnosis will not be discussed. The problem is to determine the stage of the disease when the operation should or should not be

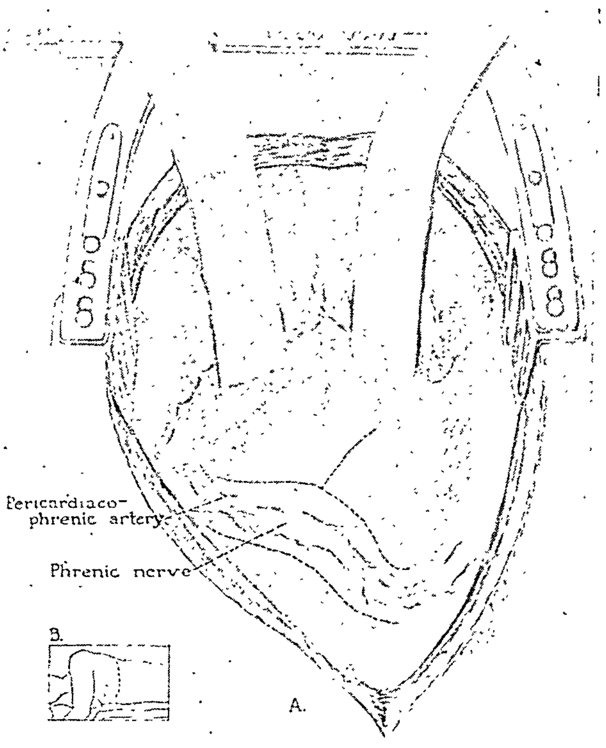

Fig. 7.—Left side of chest is opened by incision between the fifth and sixth or sixth and seventh ribs as indicated in the inset. The pericardial incisions are indicated by the broken lines.

done. Patients with signs of failure, nocturnal dyspnea, and marked enlargement of the heart are almost automatically excluded. Patients with slight or moderate enlargement of the heart without failure are accepted. Operation is delayed in patients with rapidly increasing pain and disability because these symptoms may indicate progress of the disease and an impending infarct. If decision for or against operation is difficult, it is advisable to delay decision for several months after which reappraisal is made. Patients with status anginosus have been accepted. We prefer not to accept patients addicted to drugs, but in several patients this habit, if present, was broken. Operation is indicated early in the course of the disease rather than late. The experience usually has been that the disease is worse at the operating table than anticipated.

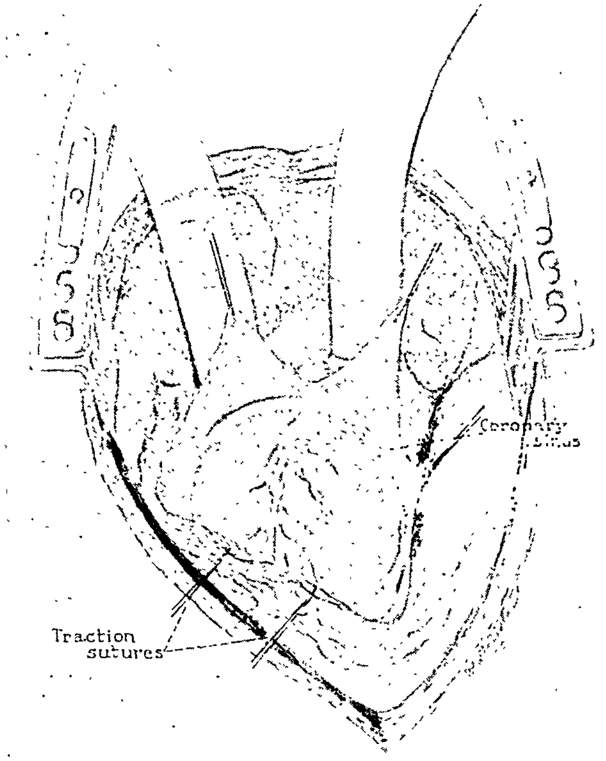

Fig. 8.—Pericardium opened for observation of coronary arteries, myocardium, and coronary sinus. Common left coronary artery and circumflex ramus of left artery cannot be seen but can be palpated. Right coronary artery cannot be seen or palpated.

After an infarct has occurred, a period of four to six months is given before operation is done. This delay serves several purposes. It affords time for intercoronary channels to develop after the low pressure bed has been established by the occlusion, and clinically it gives the patient time to "level off" so that his condition can be compared before and after operation. Also, electrical instability accompanies occlusion, and an anesthetic plus manipulation of the heart at operation may lead to ventricular fibrillation. This instability becomes less after the scar has formed and has become electrically inert. Another reason for delay applies to patients in whom one occlusion is followed by another. These patients have progressive arterial disease, and they are not candidates for operation. The disease is more likely to be progressive in patients in the 20's and 30's than those in the 40's, 50's, and 60's. The youngest patient operated upon was 27 years of age and the oldest 71.

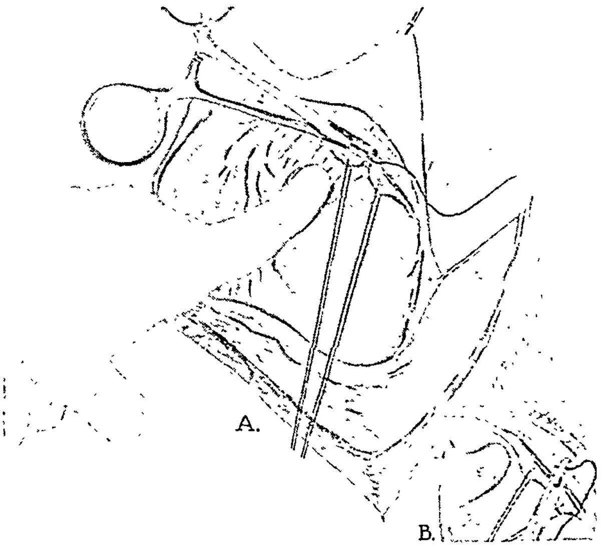

Fig. 9.—Placing a suture around the coronary sinus; *B*, needle penetrating the left atrium in a direction parallel and close to the sinus. Needle is then turned in a clockwise direction 90 degrees to emerge just superior to the sinus. Temporary traction sutures are in the fat to expose sinus.

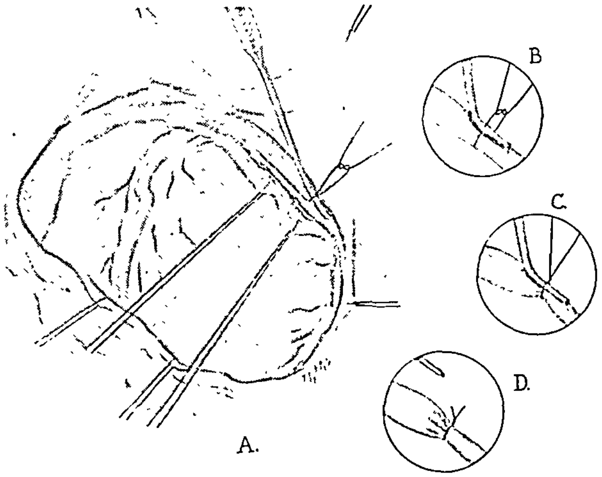

Fig. 10.—Partial ligation of the coronary sinus. The ligature is tied on a stilet 3 mm. in diameter, as in *A*, *B*, and *C*, and the stilet is removed after the ligature is tied, as in *D*.

The operation has limitations that, if properly understood, will make its beneficial effects more readily acceptable. It does not treat coronary arteriosclerosis; it treats alterations in inflow produced by the disease. It therefore does not reduce the disease in the arteries, nor does it stop its progress. It may become more marked after operation. A similar statement may be made about the myocardium. Operation does not restore an infarct to functional myocardium; however, it does reduce the size of the infarct or even prevent the formation of an infarct if another artery becomes occluded. It is possible for the symptoms to become worse in a patient who has shown clinical improvement after operation. This is brought about by the progress of the arterial occlusion, so that it is possible for the patient to be in worse condition clinically sometime after operation; yet the operation has saved the patient's life. The patient may die of coronary disease sometime after operation, but the experience so far seems to indicate that the operation prolongs life.

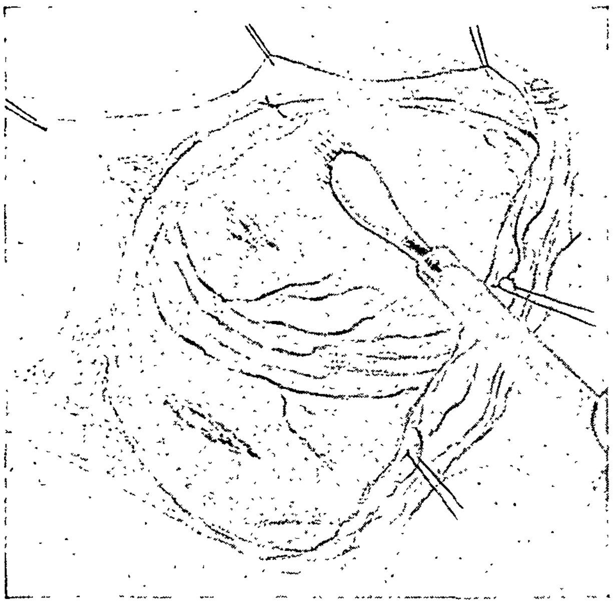

Fig. 11.—Epicardium removed by special burs. Necrotizing chemicals should not be used for this purpose.

RESULTS OF OPERATION

The results of operation can be determined by three measurements, as follows: (1) symptoms before and after operation, using the patient as his own control; (2) ability to work and to exercise, again using the patient as his own control; and (3) prolongation of life after operation. The first two items are shown in figure 14. Approximately 90% of the patients have less anginal pain or no anginal pain after operation. Several patients were operated upon who did not have any pain before operation, and these are not counted in these results. Some patients state that the angina is better three days after the operation. This improvement may be mental, but early changes in the circulation, as shown by experiment, do occur. When such mild therapy as a small quantity of whiskey or a glyceryl trinitrate (nitroglycerine) pill can reduce angina, it is not inconceivable that a few drops of blood to ischemic muscle could also give relief. As a rule the patient operated upon for coronary artery disease complains less of incisional pain than does the patient operated upon for mitral stenosis, and the incision in each is almost the same.

Some patients do not show improvement for several months after operation. The explanation for this cannot be given. A small percentage of the dogs failed to show increased backflow after operation. About 10% of the patients do not show any improvement after operation, and this aspect of the problem requires further investigation. Some of our patients are classified as salvage. These patients have severe arterial disease in the common left coronary artery or in each of the major branches of this artery. They also have extensive infarcts, sometimes with aneurysm of the myocardium. In these patients not only is the operative risk high but it is often difficult for us to understand how they can be helped by the operation, and yet some of the best clinical results are obtained in this salvage group.

The best results are almost unbelievably good. In some patients pain and disability are completely relieved. Such almost miraculous results are occasionally seen in patients without operation, and the explanation is the same as in the operated patients. Each patient develops a good set of intercoronary channels, one without operation, the other after operation, and the occlusive disease does not get worse. The end-result is the same. Indeed, operation accomplishes what nature can do but fails to do in a sufficiently large number of patients. In about 90% of the patients the ability to work is improved. Many of the patients return to jobs that they could not do before operation. It is gratifying to see this type of result; however, the patient is advised before operation that there is a good probability he will be better after operation but that he will not be cured of his disease.

It is difficult to make definite statements concerning the prolongation of life after operation. The arteriosclerotic process in the coronary arteries follows a variable and unpredictable course. These variable factors were eliminated in the experimental work because by use of the ligature the arterial occlusion was a known factor. In the dog it would be undesirable to reduce coronary artery inflow by the arteriosclerotic process even if it were possible to do so. This study of coronary artery occlusion would not exist if it were not for the fact that controlled occlusion by the ligature was used. It is a fact that a surgical operation can be done on a normal dog heart, and sometime thereafter a coronary artery can be ligated completely and in one step, and the dog has a

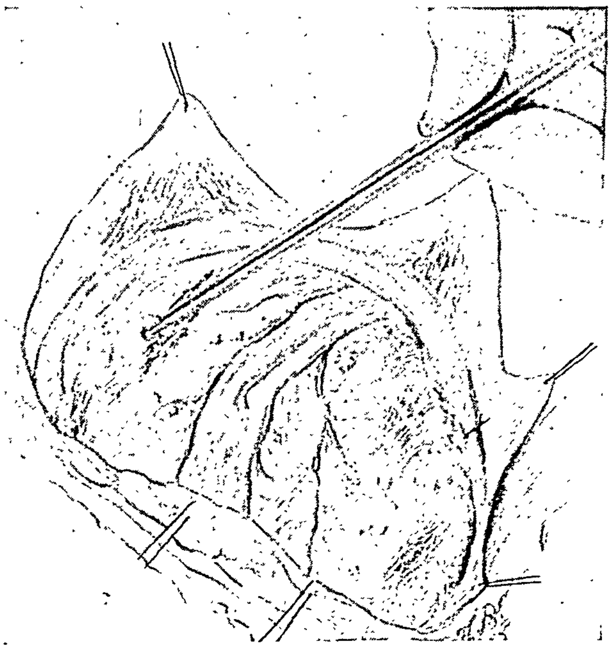

Fig. 12.—Sprinkling of an inflammatory agent (0.2 to 0.3 gm. coarsely ground asbestos) over the entire surface of heart.

better chance to continue to live than it would had the operation not been done.

It is desirable to present information on the patients concerning arterial occlusion and mortality subsequent to operation, but it is scarcely possible to do this with the data available at the present time. Our medical cardiologist, Dr. Bernard Brofman, is working on this subject, and our belief is that arterial occlusion occurs after operation and the clinical evidence is often not adequate to make a diagnosis. This is favorable for the operation. It is likewise our belief that the operation prolongs life, but to prove this statement on a statistical basis requires two identical groups of cases. Lindgren reported mortality in a group of 88 patients who were acceptable candidates for sympathectomy for angina pectoris, but the operation was not done in these patients because of nonmedical reasons.[9] The mortality was 17% the first year and 13% the second year, for a total of 30% for two years. These figures may be compared to our experiences, but the two groups probably are not strictly comparable. The operative and postoperative mortality with the number 1 operation in 75 patients was 6.6%. This mortality rate is lower than our previous figures. In the last 49 patients operated upon at Mount Sinai Hospital, Cleveland, the mortality was 2, or about 4%. The mortality in 136 patients occurring from the time of discharge from the hospital up to one year was 6.6% and in 83 patients from one year to two years was 4.8%. If these figures are added together the total operative and two year postoperative mortality is 11.4%, which is lower than Lindgren's figures without operation. We expect life to be prolonged by operation, and this is the most important purpose of our extensive studies on this subject. It is desirable to measure this aspect of the work by operating on alternate patients and determining mortality in both groups, but this is for the future.

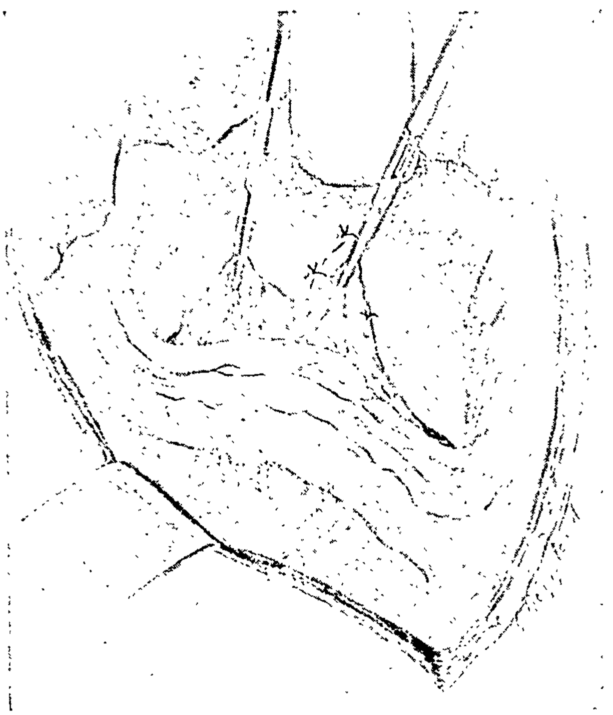

Fig. 13.—Pericardium partially closed. Mediastinal fat is used to cover the heart as much as possible. Here it is brought beneath the bridge of pericardium containing the pericardiacophrenic artery and vein. In most instances it is attached to the right border of this bridge of tissue.

SUMMARY AND CONCLUSIONS

Uniform distribution of oxygen to myocardium produces an electrically stable heart; lack of this uniformity produces an unstable heart. Differences in electrical potentials of the heart are produced by "oxygen differentials." The term "current of injury" is probably not correct. A uniformly cyanosed heart is not an injured or an unstable heart. With the number 1 operation for coronary artery disease, operative mortality has been reduced to 6.6%. The more important component of this so-called operative mortality is the disease rather than the operation. Operation relieves symptoms in 9 out of 10 patients. So far the trend of experience seems to indicate that operation prolongs life. Operation adds 282 cc. of blood per hour to ischemic myocardium, and this blood is present at the crisis of arterial occlusion. This is comparable to a transfusion of arterial blood into ischemic muscle. There is no experimental evidence to indicate that medical therapy adds or subtracts a single drop of blood to ischemic areas of myocardium. In view of this limitation the patient with coronary artery disease should be told there is a more effective treatment. Operation should be done early in the course of the disease before irreparable damage occurs in the myocardium.

PAIN:

NO PAIN -	45 %	TOTAL - 90 %
LESS PAIN -	45 %	

ABILITY TO WORK:

BETTER ABLE TO WORK, NO LIMITATIONS -	35 %	TOTAL - 90 %
BETTER ABLE TO WORK, SOME LIMITATIONS -	55 %	

9 out of 10 Back to Work and Relatively Free of Pain.

Fig. 14.—Clinical results in 103 patients who could be evaluated six months or more postoperatively.

JANUARY 1, 1954 TO MAY 6, 1955. TOTAL PATIENTS - 75

THORACOTOMY ALONE -	2 PATIENTS -	2.6 %	TOTAL - 6.6 %
OPERATIVE AND EARLY POSTOPERATIVE -	3 PATIENTS -	4.0 %	

FROM DISCHARGE UP TO 15 MONTHS - 1 PATIENT - 1.3 %

LATE MORTALITY, SUBSEQUENT TO DISCHARGE, ALL CASES, 1935 TO JUNE, 1954, 53.

136 PATIENTS - FROM DISCHARGE UP TO ONE YEAR -	9 DEATHS -	6 6 %	TOTAL - 11.4 %
83 PATIENTS - FROM ONE YEAR UP TO TWO YEARS -	4 DEATHS -	4 8 %	

MORTALITY IN PATIENTS TREATED SURGICALLY.

OPERATIVE -	6 6 %	
DURING FIRST YEAR -	6.6 %	TOTAL - 18.0 %
DURING SECOND YEAR -	4 8 %	

MORTALITY IN 88 COMPARABLE PATIENTS TREATED MEDICALLY. (LINDGREN)

DURING FIRST YEAR -	15 DEATHS -	17 %	TOTAL - 30 %
DURING SECOND YEAR -	11 DEATHS -	13 %	

Fig. 15.—Mortality in several groups of patients.

2065 Adelbert Rd. (6) (Dr. Beck).

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[9] Lindgren, I.: Angina Pectoris: A Clinical Study with Special Reference to Neurosurgical Treatment, Acta med. scandinav. (supp. 243) 138: 1, 1950.

DIFFERENTIAL DIAGNOSIS OF CHEST DISEASES

Andrew L. Banyai, M.D., Milwaukee

The problem of differential diagnosis of chest diseases may arise in medical practice in four ways. 1. Patients are seen by the physician because of symptoms referable to the chest. 2. Abnormal findings may be noted on routine chest x-ray examination on admission to general hospitals. 3. Abnormal chest findings are discovered on mass x-ray surveys and preemployment examinations. 4. Chest disease may be found in persons who are seen at periodic examinations on their own initiative or in groups, as in private industry and public institutions. The cardinal points of efficient diagnostic approach are: (1) accurate history (chronologic, environmental, occupational, and surgical), (2) thoracic and general physical examinations and correlation of pertinent findings to chest diseases, (3) interpretation of x-ray shadows in chest films, (4) expedient use of laboratory methods, and (5) adjunct diagnostic procedures. Symptoms that establish the first contact between patient and physician may serve, individually and collectively, as useful clues to considering appropriate means for correct diagnosis.

PULMONARY HEMORRHAGE

Expectoration of blood, particularly in large amounts, is often an alarming event. Assuming that one can rule out bleeding from peptic ulcer, esophageal varix, and the oropharynx, it is well to evaluate pulmonary hemorrhage in relation to the patient's age. Children, adolescents, and young adults should be scrutinized, first of all, for possible bronchiectasis, mitral stenosis, and tuberculosis. Persons 50 years of age or older, particularly men, should be studied for carcinoma of the lung and tuberculosis. Should this orientation fail, other possible sources of pulmonary hemorrhage should be explored. Some sources of pulmonary hemorrhage are given in the following four groups: (1) severe bronchitis (caused by infection, noxious fumes, gases and dusts, or allergens), benign or malignant tumors, lung abscess, bronchial ulcers, bronchial varicosities, broncholiths, and infestation with animal parasites; (2) cystic disease of the lung, pulmonary arteriovenous fistula, hereditary hemorrhagic telangiectasia, essential pulmonary hemosiderosis, and increased capillary fragility; (3) pulmonary infarction, myocardial failure with pulmonary congestion, sclerosis of the pulmonary artery, hypertension, and perforating aneurysm; and (4) aspirated foreign body, thoracic trauma, blood dyscrasias, perforation of abscess or tumor of adjacent organs and structures, and pulmonary manifestations of systemic diseases.

COUGH

Searching for the cause and origin of cough, one should consider affections of the respiratory tract and diseases of the heart. Respiratory diseases of this type include acute and chronic infections, allergic changes, and irritation of the mucous membrane by noxious fumes, gases, dusts, and tobacco smoke. Aspiration of a foreign body is usually associated with sudden gagging, choking, coughing, wheezing, and dyspnea. This episode may be followed by a symptom-free interval of one or more days and even months or years. Dislodgment of aspirated foreign bodies results in recurrence of these symptoms. There are a great many instances in which a history of aspiration is lacking, particularly in young children, in forgetful senile persons, and in cases when the accident took place under intense emotional tension or in unconscious states. Bronchospasm may provoke cough. It may be encountered not only in cases of allergic bronchial asthma but also in cases as the result of pulmonary infection, fibrosis, congestion (overt or latent), emphysema or irritation by aspirated foreign bodies, or broncholiths. Cough due to allergic bronchitis may precede asthmatic attacks by years. It may be easily mistaken for bronchitis caused by other factors. This type of cough may come on during the night only. Because of tenacious secretions, cough may be strenuous. Cough that is more pronounced at night should bring to mind heart failure, lung tumor (especially carcinoma), enlarged lymph nodes, and tumors of the mediastinum as possible provocative causes. In failure of the right ventricle of the heart, edema of the lower extremities decreases when the patient goes to bed. At the same time the lung becomes "water logged." An enlarged left auricle in long-standing mitral valve disease may exert pressure upon the left main bronchus and cause cough.

Cough occurring when the person changes position from erect to horizontal, stoops down, or bends over may signify spilling of exudate or foreign material from smaller into larger bronchi. Complaint of this sort may be heard from patients with bronchiectasis, infected lung cyst (congenital, dermoid, or parasitic), lung abscess, bronchopleural fistula, cardiospasm, and diverticulum of the esophagus. Cough on swallowing occurs in persons with developmental anomalies in the oropharynx, esophagotracheal, or esophagobronchial fistulas and in instances where there is a sensory or motor dysfunction of the laryngeal nerves. Increase in cough after meals is seen in persons with chronic lung disease. It is attributable to a reflex through which bronchial secretions are augmented in consequence of stimulation of the gastric sensory receptors of the vagus nerve. Recurrent episodes of cough in children should be scrutinized for allergy, bronchiectasis, tuberculosis, and aspirated foreign body. Children may have coughing spells after strenuous exercise. Their asthma may be mistaken for recurrent bronchitis or bronchopneumonia.

In cases of primary bronchogenic carcinoma, cough usually develops gradually. It may cause a change in the cough pattern of persons with "cigarette cough." It is persistent and difficult to control. There are some instances of lung cancer where the onset of cough is sudden and signalizes the presence of secondary lung ab-

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Chairman's address, read before the Section on Diseases of the Chest at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

scess. On the other hand, cough may suddenly disappear with the development of atelectasis distal to the neoplasm. Unproductive cough is observed when its cause is outside of the lung, as in diseases of the upper respiratory tract (postnasal drip secondary to paranasal sinus infection, partial nasal obstruction, enlarged tonsils, elongated uvula, swelling of the mucosa of the pharynx, larynx, and trachea, and tumors that may be encountered in this region), enlarged lymph nodes and tumors of the mediastinum, aortic aneurysm, and diseases of the pleura and the diaphragm. Also, patients may complain of unproductive cough in the early stages of lung infection (bacterial, viral, rickettsial, and parasitic) when there are considerable mucosal congestion and formation of viscous exudate, moreover, in allergy and with neoplasms of the lung and adjacent structures. Paroxysmal cough (fits of coughing) is seen not only in cases of whooping cough but also in cases of bronchial asthma, allergic bronchitis, and fibrinous bronchitis; in some cases of chronic bronchitis; and in cases of acute pulmonary edema, lung abscess, fluid-containing cysts, bronchial fistula during periods of evacuation of inflammatory material, aspirated foreign bodies, and broncholiths.

PAIN IN THE CHEST

Pain is a common subjective signal of organic disease. Chest pain may originate from diseases of the pleura, lung and cardiovascular system, from pathological changes in the mediastinum, esophagus, trachea, diaphragm, chest wall, and abdominal organs, or from other miscellaneous causes. The site of pain in pleurisy usually coincides with the site of maximum involvement. Patients with diaphragmatic pleurisy may complain of pain in the shoulder region because of transmission of impulses from the sensory receptors of the phrenic nerve to the cervical cord and from here to the neck and shoulder. Also, in these cases one may note tenderness along the costal margin and in the epigastrium. In some instances extensive pleurisy may exist without pain. In diagnosing pleurisy one should not rely on roentgenograms alone. Pronounced friction sounds may be audible in some cases of pleurisy without demonstrable changes in the x-ray film. In the latter small pleural effusion may not be seen unless a roentgenogram of the chest is taken with the patient lying on the diseased side. In large pleural effusions the liver may be palpable from 2 to 3 cm. below the costal margin. Children may have vomiting with pleural effusion. In adults exploratory thoracocentesis is preferably done at the eighth or ninth interspace in the scapular line, in children at the site of greatest dulness of the percussion note. Infralobar (supradiaphragmatic) and interlobar pleural effusions occur more frequently than is generally realized. Bacteriological, chemical, cytological, and other laboratory studies are mandatory for establishing the etiology of pleural effusions. In tuberculous pleural effusions from 75 to 100% of the white blood cells are lymphocytes, except in early phases of the disease when neutrophilic leukocytes may predominate. Long-standing transudates, nontuberculous exudates, pleural effusion associated with Hodgkin's disease, and rheumatic fever may show a predominance of lymphocytes.

Clinically significant hydrothorax is most often the result of heart disease, but it also occurs as a complication of nephritis and as a complication of tumors of the lung, pleura, mediastinum, and diaphragm. Pleural transudate is a characteristic finding in Meigs' syndrome. The pleural effusion is secondary to peritoneal transudate, caused by a fibroma of the ovary, and reaches the pleural cavity by diffusion through the lymph channels of the diaphragm. Ascites starting from other abdominal and pelvic diseases may be associated with hydrothorax. In heart disease the effusion is more frequently on the right side than on the left side. This is attributed to pressure of the greatly enlarged right aurical upon the pulmonary veins. Possibly, the larger pleural surface of the right lung favors the penetration of transudate. Thoracic pain originating from the pleura may be caused by infarction, primary and metastatic neoplasms, silicosis, asbestosis, spontaneous pneumothorax, hemopneumothorax, chylothorax, trauma, and formation of bronchopleural fistula. In spontaneous pneumothorax and in tumors of the pleura, pain may be precordial and angina-like. Parenchymal and interstitial infections of the lung (lobar pneumonia, bronchopneumonia, disseminated forms of virus pneumonia, and lung abscess) may result in chest pain. In some of these instances pain may be retrosternal and oppressive in character. Bronchitis and bronchiectasis may be associated with chest pain. The latter is brought about by pressure of accumulated inflammatory exudate upon the bronchial mucosa. In some of these instances pain may be pronounced, but it is relieved by adequate bronchocatharsis. Bronchial ulceration caused by infection or new growth may provoke pain in the chest.

Tumors of the lung may lead to chest pain either by direct pressure or by bronchial occlusion followed by atelectasis and infection. Sudden massive atelectasis from any cause is likely to be associated with thoracic pain. Other possible causes of this symptom are pulmonary congestion, broncholiths, air embolism, arteriovenous fistula, interstitial emphysema, bronchospasm with retention of secretions, and pathological alterations associated with systemic diseases. In many instances pain is exaggerated on deep inspiration (ponopnea) or on coughing. In lung tumors the pain may radiate to the arm. The significance of pain resulting from cardiovascular diseases cannot be overemphasized. Depending upon the medical history and physical, x-ray, electrocardiographic, functional, and other clinical findings, the following conditions should be given due consideration: coronary artery disease, mitral stenosis, aortic stenosis, myocarditis, pericarditis, aortitis, aneurysm of the aorta, dissecting aneurysm, ruptured aorta, coarctation, hypertension (systemic or pulmonary), neurocirculatory asthenia, and abuse of nicotine and coffee.

Almost any mediastinal disease may cause retrosternal pain, including mediastinitis and enlarged hilar and paratracheal lymph nodes caused by tuberculosis, severe generalized infections, fungous disease, sarcoidosis, infectious mononucleosis, syphilis, silicosis, diseases of the hemopoietic system, and diseases associated with erythema nodosum. Pain in the chest may be caused by benign and malignant tumors of the mediastinum; intrathoracic, nontoxic, nodular goiter; mediastinal cyst and hernia; and perforation of the esophagus by a foreign body. Pain exhibited by patients with mediastinal tumors and intrathoracic goiter may be anginoid in character. Pneumomediastinum is likely to cause considerable chest pain together with dyspnea of various degrees.

Affections of the esophagus, with or without dysphagia are the sources of thoracic pain more frequently than generally realized. The discomfort varies from mild burning sensation to severe pain anteriorly or posteriorly. It may be localized in the midline or laterally. In some instances it is identical with anginal pain. In addition to esophagitis caused by infection or poisons, the cause of pain may be carcinoma or other tumors, foreign body, rupture, diverticulum, stricture, and megaesophagus. Anginoid pain may result from esophageal spasm at the cardia. Nonsphincteric esophageal spasm, between the upper and lower ends of this structure, may result in dull, or severe, shooting pain. Fluoroscopic examination, roentgenograms with contrast medium, and, if necessary, esophagoscopic examination reveal the nature of the disease. Hiatus hernia as a possible cause of pain in the chest is often overlooked. Pain originating from this source may be localized at the lower part of the chest, at the left costal margin, or in the scapular region. It is worse when the patient is lying down, particularly after heavy food intake. The pain may be angina-like, and it may radiate to the left shoulder and arm, but it is rarely provoked by physical exertion or by emotional distress. On the contrary, this type of substernal distress may be relieved at night by sitting up in bed or getting up and walking around. Diagnosis is established by roentgenograms of the esophagus with contrast medium with the patient in the Trendelenburg position and by other auxiliary x-ray methods. In standard chest x-ray film a curved linear density parallel to the left cardiac silhouette is suggestive of hiatus hernia. Awareness of this disease is of particular importance because of its increased incidence in advanced age and because mistaking it for heart disease implies faulty therapeutic management, uncalled for heart consciousness, and, possibly, loss of gainful occupation and needless invalidism.

Of other diseases that may cause pain in the chest, mention should be made of acute diaphragmitis (Joannides-Hedblom syndrome) and involvement of this muscle by trichinosis, in periarteritis nodosa, and in cases of benign and malignant tumors. Some patients with pseudohypertrophic emphysema of the lung complain of pain in the lower part of the chest. Most likely, the pain is attributable to hypoxia of the diaphragm and intercostal muscles. A great many diseases of the chest wall may cause pain that may be misinterpreted as originating from pulmonary or cardiovascular affections. In this category belong myositis, fibrositis, diseases of the interspinous ligaments, osteomyelitis, periostitis, and tumors or fracture of the cervical or thoracic vertebrae, the ribs, and the sternum. Moreover, one should keep in mind the possibility of herniation of an intervertebral disk in the cervical or upper thoracic spine, with pressure on the spinal cord, spinal arthritis, Tietze's syndrome, slipped costal cartilage, and suppurating intercostal lymph nodes. Herpes zoster may be associated with severe pain in the chest prior to its characteristic skin manifestations, thus simulating acute pleurisy. Mastitis, trauma, post-thoracotomy muscular imbalance, and spinal radiculitis are other possible sources of thoracic pain.

Pain originating from some of the abdominal organs may be referred to the chest through mediation of the major splanchnic nerves to the posterior root ganglions of the dorsal spine, anastomosis of branches of the superior mesenteric plexus and the phrenic nerve, or direct pressure upon the sensory nerve endings of the phrenic nerve at the lower surface of the diaphragm. Furthermore, it is known that lymph vessels of the gallbladder have connections to retrosternal and diaphragmatic lymphatics. Substernal pain simulating angina pectoris may be noted in diseases associated with distention of the biliary tract; in some cases of acute gastritis, gastric ulcer, duodenal ulcer, perigastritis, and periduodenitis; in distention of the stomach due to aerophagia; and in distention of the splenic flexure of the colon. Precordial pain may also result from pylorus spasm and pronounced gastric ptosis. In some of these instances pain may be referred to the neck, shoulder, and arm. In patients with peptic ulcer, thoracic pain may be exaggerated by coughing and it may be more pronounced at night.

Pain below the right scapula or in the right shoulder is of common occurrence in cholecystitis and cholelithiasis. Pancreatitis and carcinoma of the pancreas, hepatodiaphragmatic adhesions, sudden hepatomegaly due to congestion in failure of the right ventricle of the heart, liver abscess, and subdiaphragmatic abscess may cause pain in the lower part of the chest or in the shoulder. Acute and chronic appendicitis may be the source of pain in the right supraclavicular region. Also, in some of these instances pain may be elicited in this area by manual pressure at the right lower quadrant of the abdomen. In addition to an accurate clinical history, with special attention to the timetable of pain in relation to food intake, physical examination, electrocardiographic and x-ray studies, and other methods are necessary for correct diagnosis.

Thoracic discomfort varying from slight to severe pain may be encountered in other disorders. Precordial pain may be present in cases of hyperthyroidism, hypothyroidism, pernicious anemia, and severe secondary anemia. Pain may be referred to the chest in tumors of some of the cranial nerves, tumors of the base of the skull, neoplasms of the spinal cord and spinal nerves, supranumerary cervical rib, carotid sinus syndrome, and tabes dorsalis. Other diseases that may be associated with chest pain are scalenus anticus syndrome, epidemic pleurodynia (Bornholm disease), lead poisoning, hypoglycemia, thiamine chloride deficiency, and hyperventilation. In the subconscious mind of some individuals pain may serve as a disguised escape mechanism from distressing emotional or mental situations. Clarification of physical and x-ray findings in the aforementioned instances may require serologic, hematological, biochemical, metabolic, and other studies.

DYSPNEA

Dyspnea is regarded in most instances as a serious warning signal of disorders of the cardiorespiratory mechanism. Space does not permit a detailed consideration of dyspnea resulting from sudden occlusion of the air passages by an aspirated foreign body or of their gradual obstruction by neoplasm, goiter, aneurysm, cyst, and other mediastinal diseases. Severe thoracic trauma may interfere with normal respiration and circulation. Pulmonary ventilation may be gravely disturbed by poliomyelitis, myasthenia gravis, encephalitis, meningeal hemorrhage, and cerebellar tumors. Hemorrhagic, traumatic, and surgical shocks interfere with the normal rate of blood flow and cause dyspnea. Dyspnea may be the result of severe anemias and poisonings that disturb the transportation of oxygen to and utilization of oxygen by the tissues; it also can be caused by pressure of diaphragmatic hernia and by elevation of the diaphragm in ascites. Women may complain of dyspnea during the later part of pregnancy though the heart is normal.

In the symptomatology of dyspnea one should consider the possibility of sighing hyperventilation (hyperventilation syndrome), hyperventilation of nephritic and diabetic acidosis (central type of dyspnea), and shortness of breath due to pain in the chest. Special attention to the psyche of the patient may be of utmost importance, for anxiety, frustration, and other adverse psychogenic factors may cause subjective difficulty in breathing. The following conditions are common causes of dyspnea: infections and tumors of the lung and pleura, including various types of pneumonia; severe bronchitis; interstitial pneumonitis; atelectasis; extensive pulmonary fibrosis; congenital cystic disease of the lung; interstitial emphysema; pulmonary embolism; pulmonary hypertension; and pseudohypertrophic emphysema. Allergic bronchial asthma belongs in this category. Here dyspnea is attributable to bronchospasm, tenacious bronchial exudate that occludes the lower air passages, and consequent atelectasis and emphysema. Spontaneous pneumothorax and large pleural effusion represent loss of large respiratory areas of the lung and lead to dyspnea.

Pulmonary edema blocks the alveoli, thus interfering with oxygen and carbon dioxide exchange. Although it may result from inhalation of noxious fumes and gases, its most frequent source is failure of the left ventricle of the heart. Pulmonary congestion or edema from this source may be seen in the form of nocturnal cardiac asthma, evening dyspnea, dyspnea in the recumbent position, and exertional dyspnea. I have observed that in some patients with dyspnea on exertion, without basal rales on auscultation, prompt relief from this symptom was secured by digitalization and diuresis (latent pulmonary edema). Dyspnea may be observed in patients with paroxysmal auricular tachycardia, auricular fibrillation and fluttter, and pulmonary congestion due to mitral stenosis or to strain of the left ventricle resulting from acute glomerulonephritis. Another point that deserves special attention is the hitherto unrecognized high incidence of bronchospasm. As mentioned previously, it occurs in a great variety of lung diseases, such as allergy, infection, mechanical and chemical irritations of the air passages, pulmonary fibrosis, and emphysema. Experience has shown that bronchorelaxant drugs are bound to bring about salutary results in these cases.

CONCLUSIONS

Accurate diagnosis is the key to successful treatment of chest diseases. Thus, it is mandatory that the physician approach this problem with a wide orientation in medicine, an inquisitive mind, and sound logic. The welfare of the patient demands that the physician take full advantage of diagnostic aids derived from x-ray and laboratory studies. One should also avail himself of other diagnostic methods, such as skin testing, biopsy, bronchoscopy, and cardiorespiratory function tests as circumstances may require. It is inexcusable to omit a thorough physical examination.

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PROBLEM OF ECZEMA

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Among the major manifestations of allergic disease, eczema is a frequent problem in diagnosis and treatment. When the skin is the shock organ, it is as necessary to understand the important role of secondary changes as it is to recognize the allergic mechanism and the associated allergic factors. While a diagnosis of eczema is not characteristically difficult, the discovery of the etiological agents and actual management of the case can baffle the practitioner. This is derived partly from the persistence of certain ideas and practices that are contrary to observed facts and that disappoint those who attempt to apply them. With a knowledge of basic allergic principles and a common sense assessment of therapy, the disease should be less of a problem in etiology and its treatment, both symptomatic and specific, will become more successful.

The identification and limitations of eczema has been made difficult not only by a tendency to regard it as a skin disease but also by the use of many terms that confuse rather than clarify the condition. It is more accurate to regard the various superficial manifestations as different phases of a single process.[1] Of the many terms in use, "allergic" or "atopic dermatitis" is perhaps most descriptive but "eczema" has more historical support. The condition is not limited to childhood and is seen in every decade although it is not common in the aged.[2] Eczema is always bilateral and somewhat symmetrical. Not only is the classical flexural distribution seen in the bends of knees and elbows, but the exposed areas of the body are commonly affected. The face and neck and extremities may be partly or completely involved. Rarely,

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[1] Hill, L. W.: Some Problems of Atopic Dermatitis in Infancy and Childhood, J. Allergy 18: 181-185 (May) 1947.

[2] Hill, L. W., and Sulzberger, M. B.: The Evolution of Atopic Dermatitis, Arch. Dermat. & Syph. 32: 451-463 (Sept.) 1935.

however, do the lesions invade the hairy scalp or the palms or soles. Occasionally, the trunk can be the site of lesions but only in association with the other areas noted. The earliest manifestation of the disease is actually an urticarial wheal that is quickly masked and distorted.[3] Pruritus of a persistent, agonizing, and exacerbating character causes constant scratching and rubbing and a traumatic alteration of the skin that totally submerges the initial urticarial phase of the lesions. Upon the thin and insubstantial skin of the infant and younger child, this itching and rubbing produces erythema, then vesiculation, and finally exudation of serum from the edematous, involved areas. Crusting is naturally associated with this process. When the skin of the older child and adult is submitted to this same incessant scratching and rubbing, it becomes leathery and lichenified and exfoliates constantly. Many crusts are seen as are local thickenings where healing competes with repeated injury. During severe exacerbations of this older group, areas may develop the same characteristics as in the infantile type. Eczema is the same disease in all age groups. Despite the differences in the duration of the scratching and variations in the age of the skin and its reactions, all are responses to the same allergic stimuli.[2]

Differential diagnosis is not a problem as a rule. Such diseases as scabies, psoriasis, dermatitis venenata, and id reactions to fungus disease may have a similar appearance in some cases, but they also possess characteristic features that will identify them. Contact dermatitis has been mistakenly associated with eczema possibly because of the frequent use of the misleading synonym "contact eczema." Actually, there is a great difference between the two conditions. The contact lesion does not represent an allergic phenomenon except in the most strictly local sense. The basic difference in the vast majority of cases depends upon a characteristic location of the lesion in relation to some contactant and a history that also incriminates this contactant as a cause. Allergic investigation is of no value in contact dermatitis, and even patch tests are so frequently falsely positive or falsely negative [4] that the diagnosis often rests upon the location of the lesion, the clinical history, and avoidance of contact. Parenthetically, we have made it a practice in lesions of this type to seal them completely with adhesive tape when their location permits, such as the fingers or hand. Thus covered for several weeks, the involved area will show dramatic clearing in many instances.

DIAGNOSIS AND TREATMENT

The etiological diagnosis is the beginning of perplexity for many practitioners who attempt to care for the patient with eczema. Here is where the allergy history, the most valuable of diagnostic tools, can assemble pertinent facts and establish a continuity of events. In order to obtain a good allergy history, one must approach it free from prejudicial interpretation or anticipation of the facts one wishes to obtain. The statements of the patient must be accepted at face value and neither minimized nor emphasized to fit some preconceived theory. The most common failing in this category is to seek out and stress emotional factors. These patients are irritable and fatigued from sleepless nights of itching and scratching. Any psychoneurotic manifestations are understandably exaggerated, and any emotional upset will act as a trigger to start an exacerbation of the pruritus. This sequence of events is no more unusual in eczema than in any chronic disease state.[4]

It is important to seek evidence of other associated allergic phenomena in the history and physical examination. Not only does this lend support to the allergic character of the skin lesions, but the pattern of these other symptoms can give clues and relationships that may be obscured in the history of the skin lesions alone. Thus, an associated allergic rhinitis may have seasonal exacerbations suggesting that the skin lesions may also be partly the result of a pollen sensitivity. Both rhinitis and bronchial asthma are commonly seen, not only associated, but also alternating with the eczema over periods of months and years.[5] During quiescent or latent phases, it will be found that a blocked nose, rhinorrhea, or a cough and wheeze are present as persistent evidence of the allergic constitution. Infection also has an effect upon the course of eczema, and it has been observed that exacerbations will occur associated with the common bacterial infections. However, there is a pronounced tendency of the disease to subside or even temporarily disappear during the course of viral type disease, particularly the infectious exanthems.[6] Previous treatment of the eczema should be investigated, and it is often possible to relate exacerbations to a certain medicament or ascertain the failure of others. After seeing large numbers of these cases, one hears of remarkably few medicaments that have more than temporary value in the opinion of the patient who becomes a most critical judge as he continues to seek relief.

Skin Tests.—While great emphasis is given to the allergy history, it is equally important not to minimize the value of skin tests. Yet statements that disparage this procedure are seen, and many practitioners are unable to shake the doubt that such assertions create. Some believe that there is no value to skin testing [7] and that the patch test is the procedure of choice. They deny relationships with asthma and hay fever and believe that causal agents are rarely found or proved.[8] Statements of this character disappoint and confuse those who must encounter eczema in their practice and yet who lack the time and special experience to evaluate such concepts. Patch tests in eczema have been tried and discarded by all who have had experience with them.[9] The intimate association between eczema and respiratory allergy was described as early as 1881.[10] Finally, skin testing in the hands of those who regard it as a corroborative procedure that supports and further delineates the history becomes a potent factor in the ultimate long-range treatment of the causes of eczema. The skin test will always disappoint those who demand from it a final answer to etiology. There is no test in the field of medicine whose results are better than the physician who interprets them. This is particularly true of the skin test procedure in allergy. Variables such as false positive or negative reactions or potency of the testing materials can only be assessed by the physician who measures his test results in the light of a detailed history of the case.

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[4] Sulzberger, M. B.: Dermatologic Allergy: An Introduction in the Form of a Series of Lectures, Springfield, Ill., Charles C Thomas, Publisher, 1940, pp. 117, 121.

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[6] Feingold, B. F.: The Influence of Acute Infection upon the Course of Allergy in Children: Some Clinical Observations, J. Pediat. **34**: 545-558 (May) 1949.

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[8] Cooke, R. A.: A Consideration of Some Allergy Problems: Allergic Dermatitis (Eczema), J. Allergy **15**: 203-211 (May) 1944.

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Elimination Diet.—The widespread use of the elimination diet as a diagnostic procedure is an attempt to reduce allergy diagnosis to a relatively simple procedure. Considerable experience indicates that the elimination diet cannot be related to the known facts of allergic disease and therefore does not supply the answers being sought. Food as a cause of eczema plays no larger role than it does in other manifestations of allergic disease where inhalant factors such as pollen, feathers, animal danders, and dust are at least as important.[11] The infant is the exception to this generalization, but the simplicity of its diet makes elimination procedures superfluous. In infants and younger children, there is the danger of malnutrition that has occurred with the use of the elimination diet. Such a hazard is less desirable than a skin condition in a well-nourished child. In an analysis of the test results in 4,589 cases of allergic disease, Piness and Miller [12] concluded: "The insidious appeal of what superficially appears to be not only a practical but a simple method of diagnosis and treatment probably explains the popularity of the method. . . . [Since] the elimination diet does not eliminate . . . pollens from the air and epidermals, etc., from the environment how can we say that the patient is being assaulted by no offending substance. One is as important as the other and yet it is only foods that are eliminated by the elimination diet, and individuals who are sensitive to foods alone are extremely rare. Our statistics show only one person in one hundred as being sensitive to foods alone." This and similar observations [13] indicate that this procedure has little value in allergic diagnosis.

Drugs.—Complications are not commonly encountered in eczema. The involved areas are quite resistant to infection considering the character of the acute lesions. When infection does occur, it is usually of a staphylococcic nature with a pustular appearance. Response to systemic antibiotics in adequate and maintained dosage is prompt, but the condition will recur if treatment is not prolonged several days beyond the clinical evidence of improvement. The local use of antibiotics is less effective and more likely to cause skin reactions. Occasionally, particularly in children, the lesions will be refractory to usual treatment and a low-grade temperature with an elevated white blood cell count is discovered without known cause. Such patients also respond to antibiotics and must be considered as secondarily infected. A relatively rare complication of eczema, yet one with serious consequences, is Kaposi's varicelliform eruption, which is an involvement of the eczematous areas with the virus of herpes simplex or of vaccinia.[14] An obvious and oft-repeated corollary to a discussion of this condition is the warning never to vaccinate in the presence of eczema. Treatment consists of supportive care and administration of chlortetracycline (Aureomycin), which has been shown to be of some value.[15] Finally, the most important and above all the most common complication observed in eczema is the result of treatment.[16] Dermatitis medicamentosa can be the result of innumerable topically applied substances and will produce a superimposed rash that is not always clearly discernible from the underlying disease. In such instances, there is often marked improvement with the cessation of all medication. Systemic toxic reactions may occur from a medicament applied to large areas of skin, particularly in the infant, where considerable absorption of the product may occur in water-miscible creams and ointments.

Symptomatic treatment of the patient with eczema should be related to an understanding of the factors that potentiate the pruritus both in the skin and in the patient himself. In addition to the whealing and edema produced by allergic causes, the presence of crusts and scales as well as exposure of the lesions to the air [10] intensify the discomfort. Relief of these mechanical factors is accomplished by the use of epsom salt baths and boric acid ointment. The baths may be used three or four times daily and during the night if needed, and, after drying, the patient applies the boric ointment liberally to the involved areas. It will be found that the baths remove the crusts and scales, and the ointment both lubricates the skin and, by coating it, protects from exposure to air. Persistence of this simple regimen often brings comfort and rest. In addition to the skin, the patient and his family also require treatment. Explanation and calm reassurance have a more salutory effect than ill-advised predictions that had probably been disillusioning on some previous occasion. Mild sedation such as phenobarbital or chloral hydrate may be used for emotional instability, but large doses seem to increase discomfort. Sleep will occur with the relief of pruritus, not with narcosis. The development of corticotropin (ACTH) and the adrenal steroids have not mitigated the problem of treatment in eczema.[17] While dramatic clearing of the lesions will often occur, disappointments are frequent and the invariable recurrence after cessation of therapy may be of greater intensity than the original complaint. There is growing evidence of the dangers of these substances,[18] and their use in ointment form does not justify the high cost of covering large areas of skin. In the last analysis, it is still necessary and ultimately more fruitful to seek specific causes for eczema.

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COMMENT

Allergic management represents an interpretation of the history, the physical examination, and skin test results into a program of elimination and specific desensitization. The patient must understand the physician's objectives and the reasons for his own cooperation. There is a limit to the exclusion of foods from the diet. Those that produce clinical reactions have probably been eliminated already. But the removal of a wide range of items based upon literal interpretation of skin test reactions is unrealistic. It is more reasonable to suggest constant rotation of a wide variety of foods, thus reducing the exposure of any one in particular. Naturally, there are many cases in which the selective character of the test results indicate the need to remove a number of foods from the diet. The inhalant group is equally and sometimes more important than foods. Desensitization to pollen must be calibrated to the season and the botanical peculiarity of a given area. In the case of environmental factors, removal of offending substances, particularly from the bedroom, can effectively reduce the patient's exposure especially at night when he needs it most. Desensitization is also indicated here, when the perennial nature of the problem must be understood and stressed. These are the broad principles of allergic management that, when intelligently practiced, will bring comfort and relief to the patient with eczema and gratification to his physician.

SUMMARY AND CONCLUSIONS

Eczema, or allergic dermatitis, is not a problem if it is regarded as a skin manifestation of allergy intensified by prolonged scratching. Symptomatic relief of itching is most effective when simple medication is used. Certain practices such as patch testing and elimination diets are found to be of little value in handling eczema. The ultimate goal of therapy is discovery and treatment of specific causes. These are determined by a careful history corroborated by skin testing.

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THE GENERAL PRACTITIONER AND THE DISCHARGED MENTAL HOSPITAL PATIENT

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One in every 12 United States citizens will spend some part of his life in a mental hospital. Each year over a quarter of a million mental patients are discharged to the community. Most of these discharged patients will require help. Under stresses some will relapse and some will develop psychosomatic illness; some will sit dejectedly on the communities' doorsteps; some will sullenly declare war on society; and some will adjust. Who is going to help these people? Continued outpatient therapy, social service follow-up, vocational rehabilitation programs, and family placement services exist. The discharged mental patient needs a society that will "count him in" through love, understanding, patience, and effort. Yet something more is needed. Knowledge and experience are needed to work with the mental patient. We shall have to depend upon physicians to furnish knowledge and to provide both individual treatment and community leadership. The psychiatrists, constituting about 4% of the medical profession, cannot do the job unaided. When patients leave our mental hospitals, the chances are 10 to 1 that they will seek the help of their family doctor in their readjustment to community living. What can the general practitioner do to help?

KNOWLEDGE THE PHYSICIAN NEEDS

A basic knowledge of clinical psychiatry is important. For centuries some physicians have been doing a good job of handling emotionally ill persons without any formal training in psychodynamics. Such physicians have had a feeling for and an awareness of the basic needs and drives of human beings. They have intuitively understood the motivations of behavior. The doctor should be able to recognize psychosis and suicidal, homicidal, or psychopathic tendencies. The ability to take a good history results often in sufficient information from past behavior to permit some predictions about the future. The physician should know what therapies the hospital or the specialist has to offer, so that he knows when to make referral and what he can expect from hospital or psychiatrist.

The physician needs to know his patient. This includes his assets and vulnerabilities; his life goals and how he goes about achieving them; what he fears, loves, and hates; and where his breaking point appears to be, what situations lead him into attack, flight, depression, or physiological upheaval. How satisfactory an adjustment can a patient make at his best? How dangerous is he at his worst? What helps him? Of course, every person is so complex that one never collects all these data, but observation and repeated conferences will gradually increase understanding.

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There is a need to know the patient's environment and its interaction with him. What persons are important to him and how does he feel about them? Who can assist him? Who might he blame for his troubles if he then becomes paranoid? What persons gratify and which ones frustrate his needs? Some families through undue anxiety, intolerance, anger, or motives of gain may exaggerate the patient's symptoms and press for his recommitment. Others may be overprotective or blinded by similar traits in themselves, being unaware of the severity of the illness. The physician needs to understand the prejudices, intentions, feelings, and viewpoints of the important figures in the patient's life so that he can assess what difficulties or help they are furnishing. There should be appreciation of the demands that the patient's environment makes upon him. Sometimes complaints of patients, seemingly bizarre, have an unexpected degree of reality. Whenever serious crime is committed in a community there is often a tendency to blame discharged mental patients, though their records show that they commit fewer crimes than the average of the population. The physician should know about community services and what they can offer patients.

The physician needs knowledge of himself. He needs an awareness of his own attitudes and feelings toward mental illness in general and each patient individually. There is a need for self-examination as to how he feels about the patient and whether he tends to overidentify either with the patient or with the community when there is friction. Some physicians are extremely intolerant of overdependency, lack of responsibility, or some form of childish behavior. Some react very unfavorably to any expressions of hostility or negative feelings and quickly decide that the community should be relieved of such a person. A physician may think of mental hospitals as horrible "snake pits" and feel excessive degrees of pity and sympathy for the patient, thus delaying necessary rehospitalization. He may feel antagonism to members of the family or an employer of the patient and tend to foster the patient's rebelliousness and refusal to readjust. Some physicians are overfearful about the threats of their paranoid patients and fail to realize that, after successful treatment in a hospital, these patients are often grateful. Patients who exhibit primitive emotional behavior or transgress social codes tend to build up anxiety and hostility in us from which it is very difficult to dissociate ourselves. For these reasons the mentally ill were burned as witches during the Middle Ages, and we still tend to locate our mental hospitals in isolated communities far from our best facilities for diagnosis and treatment.

The problems of the novel, unconventional, or "different" patient need thought. Many persons are immediately threatened by newness or difference. Great men such as Copernicus, Darwin, and Freud threatened whole societies by their challenging ideas. In less significant ways the maturing patient may shed old patterns, become assertive, show constructive hostility toward his relatives, loosen up his miserliness, drop excessive inhibitions, and break old ties.

THE PHYSICIAN AS GUARDIAN OF THE PATIENT AND THE COMMUNITY

The emotionally ill patient may endanger himself in many ways. Suicide is spectacular but less common than many mundane hazards. Patients may make unreasonable expenditures of money and fall into debt. They may expose themselves to injury through impulsiveness, inattention, or self-destructive urges. The dischargee's behavior may threaten the community. Aggressive sexual perversions, dangerous management of automobiles or other machinery, a need to exploit others, paranoid campaigns, or assaultiveness are common problems. These, however, appear to be less dangerous than community opinion assumes. The patient may endanger the mental health of his wife and children.

The physician must assume a reasonable degree of responsibility for both patient and community. At times these interests may conflict. The easiest course is often to seek the readmission of the patient to the hospital, but this expedient may be a serious setback to the patient's rehabilitation, justifiable only when the risk is real. The calculated risk takes courage, but has its place in all phases of medicine. Resourcefulness often permits a better solution.

The threatening behavior may stop when realistic dangers or consequences are pointed out with kindliness. A simple, gentle interpretation of apparent motives for behavior may put an end to it. Sedation or reassurance may reduce pressure so that there is a greatly lessened need to discharge anxieties in undirected behavior. Less dangerous outlets may be substituted. Bowling, boxing, walking, competitive games, or work may be excellent channels for aggression. The resourceful physician may enlist the aid of family, social agencies, psychiatrists, and friends in solving problems that are sources of hostility or anxiety, to help find constructive new directions.

When recommitment or return to the hospital is necessary, it is to be hoped that the physician has the kind of human relationship with his patient that enables the patient to accept the proceedings even if they are painful. Such a relationship comes from genuine interest and understanding between doctor and patient. If the patient is uncooperative, he may have to be returned to the hospital under restraint. A physician's resorcefulness in such situations can devise gentle and nondramatic methods for accomplishing this. Large doses of sedatives may minimize the unpleasantness of the transfer. Reassurance, kindliness, and firm but friendly insistence are much better than lost tempers, deception, or physical force. The physician may have many conflicts about commitment. In deciding about recommitment the physician's own feelings may be the greatest threat to objectivity. Overidentification with the patient or with hostile members of his community has been mentioned. He may realistically or unrealistically consider the local hospital a "snake-pit" and the psychiatrist a "crack pot." A visit to the hospital might confirm the doctor's notion, but, on the other hand, he might be pleasantly surprised.

Outdated pessimistic attitudes about the incurability of mental illness handicapped many physicians and their patients' treatment. Throughout history the mentally ill have stirred anxiety and then hostility. We feel uncomfortable with the mental patient and cover our anxiety with jokes. One reason there is so little education, medical teaching, and remedial action in the field of mental health is that people feel anxious and prefer not to think about it. Our thinking is often limited by lifelong attitudes. There is a tendency quickly to recommit a disturbing fellow.

THE PHYSICIAN AS THERAPIST

The doctor offers the discharged mental patient the same medical services that he offers the community as a whole. The mental patient is obviously subject to any of the somatic illnesses, and there are reasons why the emotionally ill are even more prone to physical illness. It is well known that schizophrenic patients show considerable susceptibility to tuberculosis. Diseases of malnutrition and anemia are common among psychotic patients. It has long been known that certain psychosomatic conditions may have a reciprocal relationship with psychosis. The patient with an ulcer may lose his ulcer during a psychosis only to regain it when the psychosis has disappeared. This reciprocity is seen in skin disorders, asthma, colitis, and migraine. It is common that the discharged mental patient whose psychosis has been alleviated may return to the community to develop a psychosomatic disorder. On the other hand, schizophrenic, hypomanic, and certain other types of psychotic patients do not show exaggerated bodily symptoms in a hypochondriacal way but actually may exhibit a strong tendency to minimize or fail to mention physical complaints. The well-known hypochondriacal neurotic patient who repeatedly returns to the physician's office may lead some persons to generalize that somatic complaints are always characteristics of emotional disorders.

Experienced psychiatrists do not take every physical complaint lightly merely because a patient has a neurosis or a psychosis. Not infrequently mental symptoms are initial manifestations of an underlying organic disease. Notorious examples are brain tumors, carcinoma of the pancreas, and the blood dyscrasias.

After the patient is discharged from the hospital the community physician who is keeping in close touch with him may realize that new symptoms reveal the presence of an unsuspected illness. Some doctors, anxious and nonaccepting of emotional disorder, search incessantly for demonstrable physical pathology. Their patients are aware of this search and are glad to avoid the acceptance of a psychotherapeutic relationship and the discomfort of searching themselves for unwholesome attitudes and emotions. This makes proper treatment progressively more difficult or even impossible.

TREATMENT METHODS IN GENERAL PRACTICE

Establishing Interpersonal Relationships.—Establishment of interpersonal relationships, essential for mental health, requires interest or regard and understanding. There are several ways to give help. The physician may directly help the patient make contact with others, encourage him to do so, or advise him how relationships can be maintained. Most important, the physician himself should establish a warm, friendly relationship with the patient. Through this experience the patient learns how to establish relationship with others. A common factor in mental illnesses is the patient's tendency to become paralyzed with anxiety and search endlessly about the same stereotyped circles for some solution to his difficulty. The physician with calmness and reassurance can decrease this anxiety and encourage imagination and resourcefulness in finding new approaches and solutions. These can often be suggested but more solidly come from tactful and insightful questioning by the doctor. On occasion it is necessary that authoritarian firmness be used with patients, but, in general, suggestion and permitting the patient to turn ideas over and make his own decisions are the most effective approaches. The physician must be a good listener.

Relieving Anxiety.—Relief from anxiety, undue tension, and pain are necessary goals. A physical examination made with confidence, thoroughness, and sympathy can be of great therapeutic value. The discharged patient can be reassured that he is not having another psychotic episode. The simple statement that all of us at times have depressive thoughts, panicky feelings, antisocial fantasies, and feelings of anger, envy, or jealousy can bring great relief. Appropriately used sedation can interrupt vicious circles and allow a much needed chance to rest. This helps reorganization to take place. Amphetamine (Benzedrine) sulfate may sometimes lift a depression sufficiently to permit a new solution to be found. Sometimes tension can be reduced by suggesting some outlets for aggressiveness such as bowling, walking, boxing, bicycle riding, or swimming.

Abreaction.—Abreaction, or the ventilation of strong feelings, is of great therapeutic value. If the emotional roadblocks that have produced the piling up of such feelings are not modified, they will of course reaccumulate and cause further difficulty, but their mere ventilation may relieve the patient. Paralyzing anxiety or inhibition may be sufficiently reduced by this means so that new insight, new outlooks, and new solutions are forthcoming. Very common is the frustrated patient who is too passive or too dependent to express his resentment to anyone he knows. It accumulates. He feels he must handle it by extreme guardedness (tension) or by projecting it on others and feeling that they are hostile or by turning it against himself in guilt, self-criticism, self-punishment, and depression. If the doctor can permit some discharge of this feeling onto himself, the patient may be much relieved. To do this a satisfactory relationship must exist, and the doctor must make the patient feel that it is permissible and acceptable to bring out some of his anger. This may be done by eliciting why the patient has heretofore been unable to express his anger. When they feel acceptance in the releasing of emotions, patients have made a great stride forward. Children express aggression and anger at all ages. These are biological as well as social matters; they are natural and necessary. The mature parent expects and accepts these reactions and patiently, understandingly, and lovingly applies social restraint and training and encouragement, gradually facilitating growth and self-control. The unlucky child is hurt, ridiculed, and rejected for his biological and uncooperative urges. He grows reluctantly, with resentment, rejects himself, and expects society to reject him. He develops inferiority and guilt and feels alienated from himself and others. The parent has met the natural but unsocialized drives with anger and criticism instead of acceptance and guidance toward doing better. The physician can offer what the parent did not give.

Acceptance, of course, does not mean encouraging instinctual expressions beyond the age in which they are normal. The mental patient, in response to frustrations in his life, has gone backward to more childish, primitive, and archaic levels of behavior. He needs from the physician not the acceptance of his behavior but the acceptance of himself as a person. When he feels this he ceases to reject and hate himself. He can then find satisfaction in adult reality and repudiate his infantile motivations. He can begin to seek love and recognition for mature creativeness, giving, loving, and doing.

Achieving Balance.—The physician can help the patient achieve a balance between socially permissible satisfaction of basic human needs and reasonable social standards. In medicine we recognize the need for a balance between intake and output of fluids and calories. In psychology there is an analogous need to balance receiving and giving of love, praise, care, and pleasure. In mature living there is a balance between giving and receiving. The overdependent person can be brought to realize he can be loved only if he acts toward others in a way that evokes love, not by being sick, helpless, or martyred. On the other hand he may be unable to receive because he is afraid of being engulfed by his dependency or because he feels so guilty and unworthy. This may lead to renunciation of food, approval, sexual satisfaction, happiness, success, and even health.

Emotional depletion often results from a conflict between strong cravings and an overly strict conscience or set of ideals. The patient feels "I want but I ought not to want or have." When there is this conflict, the need for comforts, satisfactions, emotional support (the dependency needs) may produce shame, and self-denial may produce the anger of frustration. Anger results in guilt. Guilt and shame lead to self-punishment and renunciation of all satisfactions, which in turn produce more frustration and anger. This combination of dependency needs and shame leads to a need or even desire for illness or some other face-saving process or protection for dependency. This may be a mechanism in hypochondriasis.

Therapy requires opening avenues for reasonable satisfaction to reduce frustration on the one hand and on the other hand willingness on the part of the patient to be satisfied with realistic demands. Realistic means (1) what is reasonable to expect of an adult in our culture and (2) earned rewards for mature behavior and giving to others. In psychotherapy this may be accomplished by insight into guilt feelings and their purposelessness and the adoption of reasonable standards. The fear of dependent needs appears to be basic in psychosis. To protect himself the patient relegates these needs to the unconscious and may go to the other extreme of not asking for anything from anyone. This and the fear of his own anger may make him seclusive, ascetic, or coldly overcontrolled. He gets nothing from life. He may try substitute gratifications such as drugs, alcohol, overeating, or phantasy, or may feel justified in dependency only when physically ill. In some patients the conscience is temporarily abrogated, permitting some unacceptable or antisocial behavior. This is then followed by an unrelenting, intense self-punishment that is, however, ineffective in preventing a later recurrence of the same unacceptable behavior. Often the antisocial behavior is prompted largely by a rebellious need against the overly strict conscience.

Offering Information.—The physician can offer information. In addition to offering new solutions or ways to solution of conflict he can give simple explanations about psychology, about the nature of the human need for love, or about the reaction of hostility and how it can be handled.

Encouraging What Is Positive.—The physician needs to find and encourage what is positive in the patient. This involves encouraging and helping him to develop his natural talents by persistence, further education, or in any other way that occurs to him. Plans for constructive effort should not be discouraged. Successful psychotherapy cannot be done by merely pointing out what is negative. When the patient is discouraged, his achievements and abilities should be reviewed. Often the patient's self-defeating tendencies may cause him to relinquish progress along productive avenues, and these tendencies will then need to be interpreted. The patient needs help to find his assets and develop them.

Mediating Social Reintegration.—Finally, the physician can act as a mediator in social reintegration by (1) aiding the patient to find a place to live, a job, friends, and recreational opportunities; (2) dealing with unfavorable environmental factors; (3) cooperating with another physician if a psychotherapeutic program is being undertaken; and (4) educating the community in mental health and in constructive attitudes toward mental illness.

Except in unusual situations we would not consider psychotherapy successful unless the patient, if a man, had found gainful and useful employment; anchorage or a place to which he could belong; and friends, adequate relationships with other persons, and some philosophy of life. The patient can be helped in these things by a more active intervention on the part of the physician in his social milieu; at times this is the only method open to the doctor whose patient is unaccepting or unprepared for psychotherapy. The federal government, by a public law, provides for discharged mental patients on-the-job training, vocational guidance, job placement, books, tuition, transportation, and all other things necessary to prepare the dischargee for a gainful economic existence. The physician needs to be acquainted with these facilities. Sometimes it may be necessary to provide foster home placement or family care for the returning patient if his own family has disintegrated, lost interest in him, or demonstrated themselves incompatible with him. At times the physician can talk to employers, giving them some awareness of the patient's problems and helping them decide upon a suitable niche in a factory or business.

One of the commonest problems is to aid the family in adjusting to the patient. Sometimes the physician serves not as psychotherapist but as an assistant or catalyst in connection with the patient's psychotherapy with someone else. This may require suppression of his own doubts, disapproval, or antagonism to the other therapist. On the psychiatrist's part it necessitates close collaboration, explanation, and interchange of ideas so that the physician may understand the goals and procedures. A discharged mental patient may have therapeutic ties to some physician at the hospital or sometimes just to the hospital itself, standing in his mind as a symbol for protection, health, and understanding. A physician who is aware of this relationship may preserve it and utilize it to the patient's advantage. A person may find it difficult to deal with the hostilities that build up toward his marriage partner. The most well-meaning wife may be distressed to find her paranoid husband constantly suspicious of her sexual fidelity. The physician can sometimes explain the patient to the family and achieve for him a greater degree of tolerance and acceptance. At other times he may find it necessary to advise them to treat the patient as a normal citizen rather than to overprotect or pamper him. Sometimes joint conferences between the patient, the physician, and the family are helpful in bringing to the surface unfavorable attitudes and working them out.

Often the community attitude is a source of considerable frustration and pain to the discharged patient. He may be met with distrust, suspicion, avoidance, fear, or well-meant oversolicitousness. There are so many existing misconceptions about mental illness that need to be dispelled. As physicians, this is our responsibility. The public must be educated to dispel notions that psychiatric illness is always caused by heredity, overwork, or masturbation, or that daydreaming or leading a "bad" life per se cause mental breakdown. In the minds of many there is still a stigma attached to mental illness, and many persons still feel that the mental patient has only to "shake out of it" or "forget it." Many states have excellent pamphlets or films explaining the basic principles of mental health. It is hoped that in the future the physician will accept increasing responsibility to attend parent-teacher, church, and other civic meetings where he will have an opportunity to bring correct and accurate information about mental illness before the public. This not only will aid in the rehabilitation and social reintegration of the discharged patient but will be of immeasurable value in prophylaxis for those in the community who have not yet been to a mental hospital.

SUMMARY AND CONCLUSIONS

Comprehensive medicine includes treatment of the patient as a person as well as of his cells and concern with his emotional instabilities as well as his chemical equilibrium. The patient is not an isolated object for physical and laboratory study but a psychophysiological organism reacting in a social context. Family, job, and friend relationships may be guided by the alert physician, thus helping the preservation of health and the prevention of illness or its recurrence. Social and psychological factors are important in the salvaging of the patient who has been in a mental hospital. The family doctor often has a greater opportunity in helping patients maintain mental health than does the psychiatrist. Three points should be emphasized: 1. Psychiatry must move out of the mental hospitals into the community. 2. The future general practitioner will practice more and more psychiatry. 3. There are areas and methods in which the general practitioner can function effectively in emotional and psychiatric problems.

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PAIN IN THE NECK AND SHOULDER, COMMON CAUSES AND RESPONSE TO THERAPY

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This report is based on a study of 800 patients with complaints of pain in the neck and shoulders and headaches, classified as "cervical syndromes." Patients having this particular type of complaint were studied because, although their problem is common, I feel that such patients are often not properly handled in both diagnosis and treatment. Frequently these patients are told there is nothing wrong with them because there are no marked x-ray or neurological findings. However, when the condition persists or progresses after a period of weeks or months or even years, everything from herniation of the nucleus pulposus in the neck to brain tumor is considered; and the patients are submitted to a multitude of tests, including myelograms, arteriograms, pneumoencephalograms, electroencephalograms, and ventriculograms. Rarely does anyone take the time to palpate the neck muscles or check range of motion of the neck before making tests. Certainly negative tests are of help in reassurance of the patient, but one wonders if they are necessary in many instances. For example, in my experience proved herniation of the nucleus pulposus in the neck comprises only a very small percentage of cervical problems.

COMMON SYMPTOMS AND FINDINGS

Symptoms and findings, with certain exceptions to be mentioned, were remarkably similar for all patients. As already mentioned the most common symptoms in this entire series were neck and shoulder pain and headaches. These were not necessarily associated. Headache was usually occipital but often involved temporal or parietal regions. It could be constant or occur in sharp twinges. Pain, paresthesia, weakness, and sensory changes in the arm and hand were also common symp-

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toms. Less common were face pain, earache, blurring of vision, dizziness, and chest pain. Often definite psychogenic symptoms were present, such as globus hystericus, gastric upset, fainting spells, and a general anxiety state.

Findings usually included tense neck muscles, with limitation of rotation, lateral bending, and flexion. Tender areas were present in a high percentage of cases and were either nodular or in the form of rigid strands. X-rays frequently showed reversal of the normal lordotic curve with limitation of motion of a portion of the cervical spine and often gave the appearance of a subluxation. Some physicians have a tendency to overemphasize these x-ray findings and treat the patient by rigid immobilization in a collar or brace. In my experience this serves only to fix the condition in the patient's mind, and, although it may give temporary relief, compounds the problem of treatment when it becomes necessary to overcome the effects of prolonged immobilization.

ANALYSIS OF CASES

At first glance, all patients fell into one of two main groups: those with a history of relatable injury (328 patients) and those without injury (472 patients). The group with relatable injury was broken down according to four types of injury or accident. 1. One hundred thirty-nine patients received injuries in auto accidents. These injuries usually occurred when the patient was in a stationary car that was hit from the rear, the resulting whiplash motion causing strain of the patient's neck muscles. 2. Ninety-four patients received direct injuries to the head and neck. The majority of these injuries were sustained while the patient was either at work or engaged in sports activities. 3. Forty-nine patients were injured in falls. The greatest number of such injuries were found among construction workers who fell off scaffolds at varying heights. 4. Forty-six patients received indirect injuries. These were caused in numerous ways, often quite bizarre. For example, one lady caught the feather of her hat in a door, one man hurt his neck when his finger was yanked, and another was butted by a ram when he was bending over.

The time elapsing between injury and beginning of treatment varied from one day to several years. Many patients gave a long history of mild intermittent pains that were greatly aggravated by the injury. I feel that the discomforts complained of were not necessarily caused by the injury in all cases, but in each case the patient was convinced that the injury was responsible. Most patients in this group were those eligible for compensation insurance payments. Many others had complaints with definite psychogenic features after injury. An extreme example is that of a woman who developed headaches, with no physical basis, after she was beaten over the head by her husband. It was interesting but not too surprising to find that in this entire group of 328 patients, only 57, or 17%, had associated demonstrable injuries such as fractures.

The 472 patients without history of injury were divided into five groups: 1. Eighty-eight patients had acute cervical fibrositis or myositis. The typical history in this type of case was one of cervical symptoms occurring only a short time before treatment was started. Frequently there was a drawing of the head to one side, usually described as a "crick in the neck" by the patient. Results of treatment in this group will be discussed separately from results in the other groups, since treatment time and prognosis were found to be entirely different from all the others. 2. Thirty patients had advanced cervical osteoarthritis. This group included only patients with appreciable hypertrophic spurring of the vertebra and narrowing of the intervertebral disks as revealed by x-ray. Most of these patients had radicular symptoms aggravated by extension of the neck. Obviously, this group would have been much larger if all patients with minimal osteoarthritis had been included. 3. Thirteen patients suffered from scalenus syndrome. The main complaint in this group of patients was paresthesia and pain along the ulnar aspect of one or both arms, with varying degrees of cervical symptoms Some had typical cervical ribs. Scalenus maneuvers were positive in all cases given a diminution of pulse on turning of the head to the unaffected side or on downward pressure on the arm. 4. Twenty-four patients had a herniation of the nucleus pulposus in the neck. This group included only those patients having symptoms typical of the disorder accompanied by demonstrable organic findings, such as weakness, atrophy, sensory changes of radicular type, reflex changes if the appropriate dermatome was involved, and preferably changes in the myelogram. These objective changes were considered of paramount importance in making a definite diagnosis. Pain and paresthesia down the arm associated with limitation of neck motion, cough and sneeze effect, functional weakness, and sensory changes were found not to be pathognomonic of herniation. When myelograms were obtained in such patients for compensation claim purposes, many were found to be negative. Therefore, these patients were included elsewhere and not considered as a part of this group. 5. Three hundred seventeen patients had "tension neck." This was by far the largest group in the entire series. In these patients typical cervical symptoms were associated with environmental factors producing tension. No attempt was made to psychoanalyze the patients, but many facts were volunteered by the patient or discovered on routine questioning.

DISTRIBUTION BY AGE AND SEX

Distribution by age is shown in figure 1. The distribution curves were very similar for injury and noninjury groups, with a definite sharp peak between 30 and 50 years of age. As a matter of fact, 57% of all patients in the series were in their 30's or 40's. Distribution by sex is shown for the main groups in figure 2. Roughly, 60% of the total group were women and 40% were men. In the injury group, there were more men (55%) than women (45%). This was especially true for direct injuries, which involved over twice as many men as women. Auto accidents were the only type of injury that included more women than men. In contrast, in the noninjury group, 70% were women and only 30% men. This difference was most marked in the tension group, where women outnumbered men by more than three to one.

TREATMENT

Methods.—Treatment for cervical syndrome in general consisted of the application of heat, usually shortwave or microwave diathermy for 30 minutes, deep stroking and kneading massage, and, if tolerated, frictional massage. Except in the very acute cases, this was followed by vertical traction in a Sayre head sling according to the method of Hanflig,[1] which combines traction for one to three minutes with gentle manual rotation starting with approximately 30 lb. and with gradually increased amounts. All patients were given supervised active neck exercises. Particular stress was placed on rotation and lateral bending, with avoidance of extension. In addition, some patients received stimulation by a tetanizing current from a low-voltage stimulator in an effort to relax the tense neck muscles.

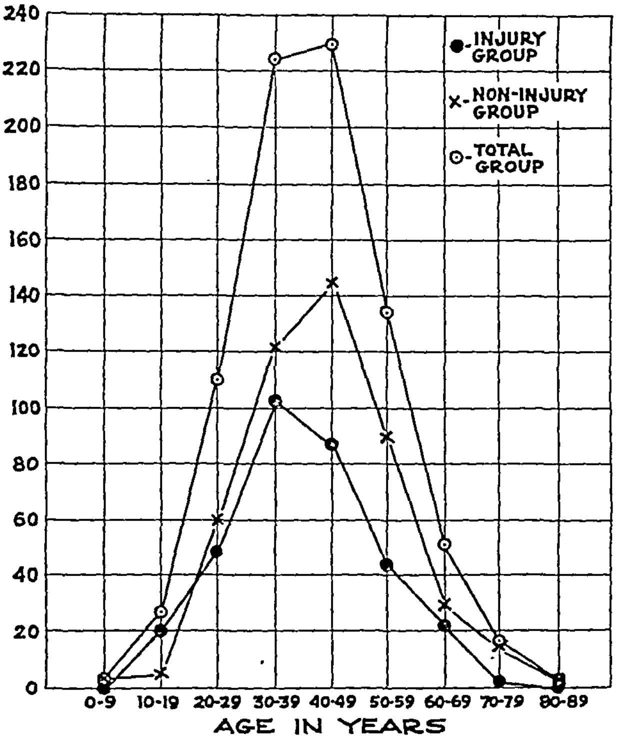

Fig. 1.—Distribution by age, showing numbers of patients in each decade for the main groups, of those having cervical disorders.

Evaluation.—Results were analyzed according to the degree of improvement in relation to the type of case, to the duration of the complaint before treatment, and to the duration of treatment. Average treatment times were also determined. Degree of improvement was defined in one of three ways: (1) good improvement, requiring marked or complete relief of symptoms with corresponding improvement in objective findings, (2) moderate improvement, signifying a variable amount of subjective relief but a definite change in objective findings; and (3) no improvement. A number of patients in each group of this series were not available for evaluation of final results. These included patients sent to the physiatrist primarily for diagnostic or disability evaluation, persons instructed in home treatment, and patients who discontinued treatment on their own before evaluation could be made. These cases were omitted from the statistical analysis to avoid confusion.

Improvement in Relation to Type of Involvement.—The degrees of improvement for the main groups are shown in figure 3. When the group with acute fibrositis was analyzed separately, the results for the remaining noninjury group were remarkably similar to those of the injury group. In the injury group 40.3% showed good improvement, 47.1% moderate improvement, and 12.6%, no improvement. In the noninjury group, 41.9% made good improvement, 38.5%, moderate improvement, and 19.6% no improvement. Results for the subdivision by specific complaint of these two main groups of patients except those given a diagnosis of fibrositis were essentially similar to these averages. They were analyzed individually, but the figures are not included here because some of the groups were too small to be significant. In marked contrast to approximately 40% good improvement in these groups, there was 90.9% good improvement in the group with fibrositis. The percentages for moderate improvement and

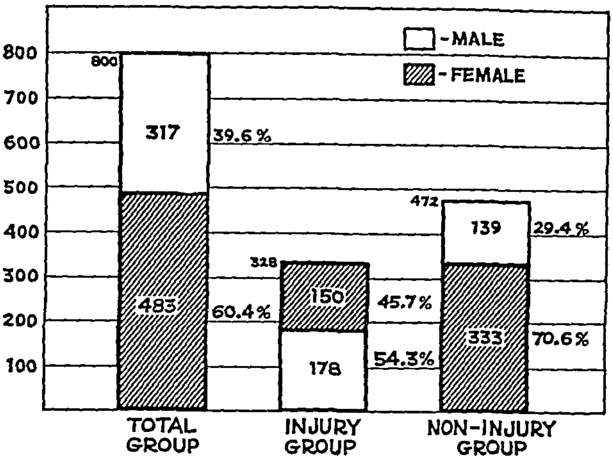

Fig. 2.—Distribution by sex, showing numbers and percentages of men and women for the main groups, of patients having cervical disorders.

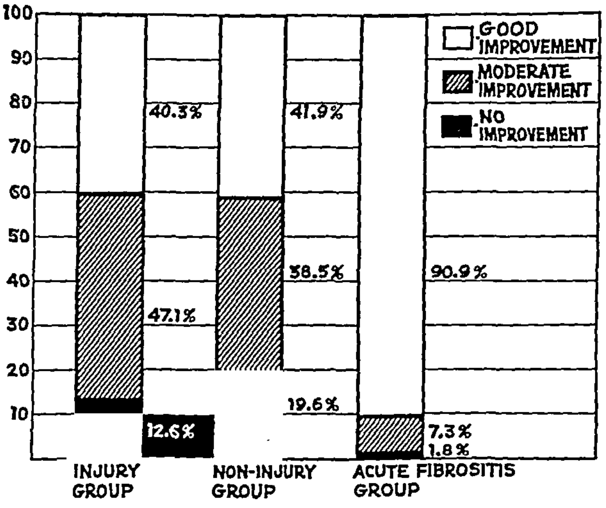

Fig. 3.—Degree of improvement in patients with cervical disorders, with those having acute fibrositis in a separate group.

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1. Hanflig, S. S.: Pain in the Shoulder Girdle, Arm and Precordium Due to Foraminal Compression of Nerve Roots, Arch. Surg. 46: 652 (May) 1943.

no improvement were correspondingly lower than in the other groups: moderate improvement, 7.3%, and no improvement 1.8%.

Average Treatment Duration.—Determination of the average time of treatment further demonstrated this difference in results. For the injury group, treatment time varied from a few days to over one year. Average treatment time was four to five weeks, and mean treatment time was three to four weeks. By the end of five weeks, 68.4% of patients had been dismissed. For the noninjury group, treatment time varied from a few days to 34 weeks. Average treatment time was three to four weeks, mean treatment time two to three weeks. By the end of four weeks, 75.4% of patients had been dismissed. For the group with acute fibrositis, duration of treatment was measured by individual treatments rather than in weeks. Treatment time varied from 1 to 29 treatments. Average treatment time was 7.7 treatments; mean treatment time was 5 treatments. Sixty-two per cent of patients were dismissed by the end of eight treatments.

Improvement in Relation to Duration of Complaint.—The length of time elapsing from the onset of the complaint until start of treatment had minimal effect on the degree of improvement. Contrary to our expectation, there was no striking difference in results. Improvement was slightly better in the group treated less than one month after onset than in those treated from one month to one year later; results in the group in which treatment was started over one year later were slightly inferior. Patients with acute fibrositis are not included here because of the short duration of complaint.

Improvement in Relation to Duration of Treatment.—The effect of the duration of treatment on the degree of improvement was also insignificant. Again, there was no marked difference in results. There seemed to be no optimal treatment time. The percentages of the different degrees of improvement obtained in later weeks were quite similar to those obtained for the first few weeks. The group with acute fibrositis is not included in this analysis because of the short treatment time.

COMMENT

One of the most striking findings in this study was the dramatic response of patients with acute fibrositis to only a few treatments. This fact must be kept in mind by anyone evaluating methods of treatment for cervical problems. The response of these patients to simple conservative measures is so prompt that it will upset results of studies of treatment of cervical disorders unless patients with this condition are considered as a separate entity. I feel that results for this group would probably have been even better if those patients who discontinued treatment without consultation could also have been included in the study.

I was surprised to find a marked similarity between the group of patients who had been injured and those who had no history of injury. It must be remembered that in private hospitals these latter patients had to pay their own treatment fees, while most of the former were being compensated. The results obtained strengthen my belief that the one factor common to both groups was tension and that an injury was often the precipitation factor producing or aggravating a tension state. A vital factor in the treatment of these patients that should be mentioned is an explanation of the mechanism of the pain. The idea that muscle tension from any cause produces pain and pain in turn produces muscle tension is often reassuring to the patients and helpful in their understanding of treatment procedures.

From the standpoint of prognosis, one cannot promise a patient with a cervical problem complete cure, although one can hope for considerable relief. From a compensation standpoint, there frequently remains some degree of permanent disability. However, many of these patients can be kept quite comfortable by intermittent professional physical therapy.

SUMMARY

Eight hundred cases of complaints of pain in the neck and shoulders, classified as "cervical syndrome" were broken down into various entities and analyzed according to age, sex, and results of treatment. Over half of all patients were between 30 and 50 years of age; 60% were women and 40% men. Acute fibrositis was found to be a separate and distinct category, with over 90% of patients showing good improvement and 7% moderate improvement, with an average treatment time of 7.7 treatments. Results for injury and noninjury groups were similar to each other, with approximately 40% and 42% of patients making good improvement and 47% and 39% moderate improvement respectively. The injury group had an average treatment time of from four to five weeks, while the noninjury group had an average treatment time of three to four weeks. Only a slight difference was found in the degree of improvement as a result of treatment of patients having complaints of varying duration before treatment was started. No significant difference was found in the degree of final improvement of patients needing treatment of varying durations, and no optimal treatment time could be determined.

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Lower Nephron Nephrosis.—Tubular degeneration of the kidney has been popularly called lower nephron nephrosis. Often it has been spoken of as renal shutdown or acute renal failure. The clinical manifestation of tubular degeneration is signalized by oliguria or anuria and it is thought to be associated with an electrolyte imbalance. Hardaway refers to three phases of lower nephron nephrosis in illustrating a case. These phases are oliguria, diuresis and final recovery. He mentions that during the phase of oliguria the tubular cells are so damaged that all of the glomerular filtrate leaks into the interstitial spaces where it is reabsorbed; therefore, there is no infiltrate remaining to be excreted from the kidney. This period of oliguria lasts about seven days. The tubular cells then begin to recover and although they are water-tight, allowing the glomerular filtrate to pass out of the kidney, they have little absorptive power and little excretion function and consequently electrolytes are lost during the phase of diuresis. This is associated with a fixed specific gravity of the urine corresponding to the specific gravity of the glomerular filtrate. The third phase is that of recovery in which the kidneys resume their normal function.—C. O. Rice, M.D., and J. H. Strickler, M.D., Lower Nephron Nephrosis: II. The Function of the Kidney When Tubular Degeneration Exists, *The American Journal of Surgery*, October, 1955.

FURTHER EVALUATION OF HEATING BY MICROWAVES AND BY INFRARED AS USED CLINICALLY

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and
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Although a number of basic studies of the heating effects of infrared energy and diathermy have been made, there still remains considerable confusion regarding the comparative effectiveness of various sources of heat on human tissue. Infrared energy for radiant heating has been used for many years. The infrared generators are safe, simple to use, and inexpensive and are known to provide effective heating of at least the more superficial tissues. During the last 25 years physicians have followed with interest the development of various types of generators of high-frequency electromagnetic energy (diathermy equipment) for heating tissues at relatively greater depths than can be effectively heated with infrared. Diathermy machines have been expensive, more difficult to use, and, if improperly used, fraught with some danger of burns and discomfort. Since it has been shown that the temperature in muscular tissue can be raised significantly with a 20 minute application of infrared energy [1] as well as with diathermy, one might be inclined to conclude that infrared energy may be as effective as some types of diathermy. Likewise, on the basis of certain theoretical considerations and some experimental data, it has been stated [2] that microwave apparatus operating at 2,450 megacycles will not provide a significantly greater increase of temperature in deep tissue than will infrared.

In order to clarify certain points regarding the effectiveness of infrared and of microwave diathermy as used clinically we have made a comparative study of the heating of deep human muscle tissue by these two types of energy. The measurements of heating were made in the quadriceps femoris muscle of normal individuals according to procedures used in evaluating diathermy equipment for the Council on Physical Medicine and Rehabilitation of the American Medical Association. Certain standards were established by this Council for heating of deep tissue by a diathermy machine in order for it to be rated as acceptable.[3] The Council required that such a machine must be able to develop a temperature of 40 C (104 F) at the end of 20 minutes in the deep tissues of the quadriceps muscle on the anterior part of the human thigh. In 1947, the first commercial microwave-diathermy machine was tested under the auspices of the Council and it satisfactorily met these requirements. In 1954, two commercial models of microwave-diathermy generators were made available to us for further study. The heating effects of these two commercial generators have been compared with three standard sources of infrared radiation.

RESULTS OF STUDIES WITH MICROWAVE GENERATORS

The heating effects of two microwave-diathermy generators using three standard directors, namely A, B, and C, were studied. The frequency of these generators was 2,450 megacycles with a wave length of 12.2 cm. in air. This is one of the microwave frequencies allocated by the Federal Communications Commission for medical equipment. Twelve normal persons were used as subjects. Temperatures were measured by means of a thermocouple in a 20 gauge needle. This was inserted into the quadriceps muscle to a depth of 5 cm. (about 2 in.) from the skin surface, and temperatures were recorded before and immediately after a heating period of 20 minutes. The observations of temperature were made as nearly as possible under the region where the radiation of energy by the microwave directors was maximal. The output of the machines was varied according to the maximal comfortable tolerance of the patient, which is the usual criterion for clinical dosage. Energies from 50 to 100% of the maximal output of the machines were used. Directors were placed at a standard distance of 5 cm. from the skin. Six observations were made with each director of each machine, resulting in a total of 36 tests. The results of the changes in temperature are recorded in tables 1 and 2.

Consistent readings of 40 C (104 F) or higher were obtained in the quadriceps muscle at a depth of 5 cm. Previous studies on the heating effects of microwave diathermy in human muscle reported by Gersten and associates [4] utilized temperature measurements made at depths of 1.5 cm. in the volar aspect of the forearm of normal persons. These observations were made in muscle with relatively little overlying subcutaneous fat. Since it is considered that the amount of subcutaneous fatty tissue may greatly modify or limit the heating of the deeper muscles, it was interesting to note that consistent temperature increases ranging from three to five degrees (centigrade) could be obtained in muscles beneath layers of subcutaneous fatty tissue of varying thicknesses. Estimates of the thickness of skin and subcutaneous tissue were made in a number of subjects by means of soft-tissue roentgenograms in which the distance from the skin to the anterior surface of the quadriceps muscle could be determined approximately. The thickness of skin and subcutaneous tissue over the quadriceps muscle varied from 4 to 25 mm.

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The Mayo Foundation is a part of the Graduate School of the University of Minnesota.

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[2] Schwan, H. P., and Piersol, G. M.: The Absorption of Electromagnetic Energy in Body Tissues: A Review and Critical Analysis, Am. J. Phys. Med. 33: 371-404 (Dec.) 1954.

[3] *Minimum Requirements for Acceptance of Diathermy Apparatus,* report of Council on Physical Medicine, J. A. M. A. 135: 32-33 (Sept. 6) 1947.

[4] Gersten, J. W.; Wakim, K. G.; Herrick, J. F., and Krusen, F. H.: The Effect of Microwave Diathermy on the Peripheral Circulation and on Tissue Temperature in Man, Arch. Phys. Med. 30: 7-25 (Jan.) 1949.

In the subjects in whom the maximal comfortable tolerance required that the output of the machine be maintained at 50% of maximum, rises of temperature were obtained that were comparable to the rises noted in subjects for whom the output was maintained at 80 to 100% of maximum. Gersten and his associates[4] studied the temperatures at the end of five-minute periods of heating with microwave diathermy and showed that a substantial rise in temperature occurred by the end of the first five minutes of heating. This early rise in temperature of the deep tissues indicates a primary type of heating with penetration of microwaves into the muscle. He noted that the temperature then increased slightly for 10 to 15 minutes to a maximum, which occurred usually between 15 and 20 minutes after the heating was started, and then decreased if the heating was continued to 30 minutes or longer.

Table 1.—*Changes in Temperature (Degrees Centigrade) with Microwave Diathermy at a Depth of Five Centimeters in the Quadriceps Femoris Muscle After Twenty-Minute Exposure with Director A*

	Machine 1			Machine 2		
Test No.	Before Heating	After Heating	Rise	Before Heating	After Heating	Rise
1	37.0	40.5	3.5	37.0	42.0	5.0
2	36.3	40.3	4.0	37.2	40.4	3.2
3	35.8	40.5	4.7	36.6	41.7	5.1
4	35.6	40.5	4.9	36.8	41.1	4.3
5	36.1	41.0	4.9	36.0	41.2	5.2
6	36.3	40.4	4.1	36.4	41.1	4.7
Average, degrees C	36.2	40.5	4.3	36.7	41.3	4.6
Average, degrees F	97.2	104.9	7.7	98.0	106.3	8.3

RESULTS OF STUDIES WITH INFRARED GENERATORS

In a study of the heating effects of three commonly used sources of infrared energy for comparison with the effects of microwave diathermy, observations were made of the temperature in the quadriceps muscle at a depth of 5 cm. from the skin surface before and after 20-minute applications of infrared radiation. The three sources of infrared energy used were (1) a 250 watt reflector heat bulb applied at distances of 35 to 40 cm. (about 14 to 16 in.), (2) a 300 watt, ordinary frosted tungsten-filament bulb with a reflector applied at a distance of about 35 cm. (14 in.), and (3) a 450 watt carborundum-rod unit applied at a distance of 90 cm. (about 36 in.). The first two units are considered to be sources of near or short infrared energy and the carborundum-rod unit a source of far or long infrared radiation. The distance from the skin to the source of infrared radiation was based on the maximal comfortable tolerance of the patient. Temperatures of the deep tissue of the thigh indicated rises of a maximum of one degree (centigrade) in a series of normal subjects tested with the three sources of infrared (table 3). These studies were conducted in a room in which the temperature and humidity were controlled (80 F and 40% humidity).

Table 2.—*Summary of Changes in Temperature (Degrees Centigrade) with Microwave Diathermy at a Depth of Five Centimeters in the Quadriceps Femoris Muscle with Twenty-Minute Exposure*

	Machine 1				Machine 2			
Director	No. of Tests	Before Heating	After Heating	Rise	No. of Tests	Before Heating	After Heating	Rise
A	6	36.2	40.5*	4.3†	6	36.7	41.3	4.6
B	6	36.6	40.6	4.0	6	37.3	40.6	3.3
C	6	36.5	40.9	4.4	6	37.0	41.2	4.2

* 40 C = 104 F.

† Rise of 4.3 degrees (centigrade) = rise of 7.7 degrees (Fahrenheit).

It is well known that the major amount of the infrared energy is absorbed in the first few millimeters of skin and subcutaneous tissue and that heating of deeper subcutaneous tissue and muscular tissue occurs secondarily. Gersten has shown that this type of secondary heating produces an almost linear increase in temperatures in the subcutaneous and muscular tissues over a period of 15 minutes when the infrared energy was applied over the volar aspect of the human forearm. Although in our study slight rises of temperature occurred in the muscular layers following the use of infrared radiation, certainly the degree of heating at depth is extremely limited and one can predict with some certainty that the rise of temperature at a depth of 5 cm. will be almost negligible. Our data showed that the highest rise in temperature observed in the deep thigh muscles was one degree (centigrade). These observations are in agreement with those of Sweeney and associates,[5] who found rises of less than one degree (centigrade) in muscular tissue of the thigh and buttock at a depth of 4.5 cm. and noted no significant differences in heating between the carborundum-rod units and the luminous sources of infrared energy. Likewise, Murphy and associates[6] showed no significant deeper heating with infrared radiation in experimental animals. These observations with infrared radiation are in marked contrast to our observations with microwave diathermy.

Table 3.—*Rise in Temperature (Degrees Centigrade) with Infrared Radiation at a Depth of Five Centimeters After Twenty-Minute Exposure*

Case No.	250 Watt Reflector Bulb	300 Watt Tungsten Bulb	450 Watt Carborundum Unit
1	1.0	0.7	0.2
2	0.4	0.5	0.2
3	0.7	0.4	0
4	0.4	0.8	0
5	0	0.1	0.1
6	0.4	0.4	0.6
7	0.5	0.5	0.3

CONCLUSIONS

Microwave diathermy at 2,450 megacycles consistently raised the temperature deep in the quadriceps muscle to levels of more than 40 C (104 F) when applied for 20 minutes with the usual clinical techniques and dosages. Infrared radiation derived from three standard sources did not produce consistently significant elevations of temperature in the quadriceps muscle at a depth of 5 cm. from the skin surface. It is possible that other frequencies of microwave energy may be more effective than the presently used 2,450 megacycles in heating the muscles at deeper levels. However, at the present time, this frequency is certainly providing a suitable source of heat for producing significant increases in temperature in the deep muscular tissues of human subjects.

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5. Sweeney, F. X.; Horvath, S. M.; Mellette, H. C., and Hutt, B. K.: Infrared Heating of Tissues, Arch. Phys. Med. **31**: 493-501 (Aug.) 1950.

6. Murphy, A. J.; Paul, W. D., and Hines, H. M.: A Comparative Study of the Temperature Changes Produced by Various Thermogenic Agents, Arch. Phys. Med. **31**: 151-156 (March) 1950.

CLINICAL NOTES

ESCHERICHIA COLI MENINGITIS IN FIVE-DAY-OLD INFANT

REPORT OF A CASE WITH COMPLETE RECOVERY

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and
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Meningitis is uncommon during the first weeks of life. The mortality incidence of meningitis has changed for the better as a consequence of the introduction and availability of newer and more effective antibiotics, such as chlortetracycline (Aureomycin), oxytetracycline (Terramycin), and chloramphenicol (Chloromycetin). By way of example, before the advent of these antibiotics, of 74 infants less than 2 weeks of age with primary bacterial meningitis, only 7 survived.[1] The morbidity incidence, in the form of impaired cerebral function as a result of meningitis, persists.[2] The high morbidity is partly attributable to poor resistance of the infant to infection and partly to delayed diagnosis.[2]

DIAGNOSIS

It is well known that, in some cases, the diagnosis of meningitis in the young infant may be extremely difficult, mainly because of the absence of the characteristic signs: the bulging anterior fontanel; nuchal rigidity; projectile vomiting; and positive Brudzinski's and Kernig's signs.[3] Cyanosis, fever, vomiting, or, perhaps, icterus, which in themselves are not symptomatic of meningitis, may nevertheless be present and misleading. An unexplained sepsis makes a cerebrospinal fluid study imperative, for that alone may disclose meningitis. The physician should be alert to the least suggestion of meningitis in obscure conditions, for earliest possible recognition of meningitis and isolation of the causative organism are essential to recovery. In some cases, direct smears can be made and the organism identified; otherwise cultures are required to reveal the causative organism. Escherichia coli meningitis is the most frequent form found in the infant.[3]

REPORT OF A CASE

A full-term infant, weighing 10 lb. 8 oz. (4,762.7 gm.) was born on April 7, 1953, with the aid of outlet forceps. On physical examination a few hours later, the infant was apparently normal. The mother had been in good health throughout pregnancy. The day after birth, however, a right cephalhematoma over the parietal area was observed. The temperature peak that day was 101 F (38.3 C) but dropped to normal at the end of the day. The infant had begun to feed and was taking the offerings well. On the fifth day the temperature was elevated to 103.2 F (39.6 C). The infant did not appear acutely ill but had a fulness of the anterior fontanel and a bilateral internal squint. The cephalhematoma was still present. Because of the physical findings, a tentative diagnosis of meningitis was made. A spinal tap revealed 1,450 cells per cubic millimeter; 90% lymphocytes; Pandy's test for globulin, +3; protein, 105 mg. per 100 cc.; sugar, 26 mg. per 100 cc.; and chlorides, 732 mg. per 100 cc. A direct smear of the centrifuged cerebrospinal fluid specimen revealed an occasional gram-negative bacillus. Culture of the spinal fluid and bacterial sensitivity reactions to the various antibiotics were ordered, but through an error no blood cultures were done. Procaine penicillin was given intramuscularly, 150,000 units twice daily; and chlortetracycline, 25 mg. per kilogram of body weight every 24 hours, was given orally. Medication was arbitrarily chosen. Within the next 24-hour period, the general condition of the infant was improved. The anterior fontanel was less tense; the temperature began to drop until it was normal within 48 hours after the onset of therapy.

Three days after the spinal tap had been done, the laboratory reported a positive Esch. coli growth. The sensitivity tests showed maximal reaction for chloramphenicol and streptomycin and only moderate reaction for oxytetracycline and chlortetracycline. With the offending organism identified, therapy was modified. Penicillin therapy was discontinued, and the dosage of chlortetracycline raised to approximately 35 mg. per kilogram of body weight every 24 hours. The infant tolerated this dosage well. A spinal tap done six days after the original one revealed 263 cells per cubic millimeter. The cultures were negative for growth. The infant was discharged from the hospital at 20 days of age, 15 days after the onset of illness. Medication continued at home consisted of chlortetracycline, given in doses of 25 mg. per kilogram of body weight every 24 hours. There still remained an internal squint in one eye, and the size of the cephalhematoma remained unchanged. Repeated blood cell counts as well as urinalyses were within normal range. Roentgenographic examination revealed no evidence of abnormalities in the osseous components. An 8 by 5 cm. diameter soft tissue density was present in the right parietal area representing a rather large cephalhematoma.

The infant was seen at home at three-day intervals. Two weeks after discharge from the hospital, he was returned for a spinal tap, which revealed 48 cells per cubic millimeter. The eye squint had disappeared. Two weeks subsequently another spinal tap revealed 16 cells per cubic millimeter. It was thought safe to discontinue medication at this point. The patient had been treated for six weeks. The size of the cephalhematoma, however, had still not changed. At the age of 2 months, when the child was seen at the office, the cephalhematoma was breaking down at its medial aspect as evidenced by a fluctuant erythematous area, 2 cm. in diameter. The child did not appear ill; temperature was not elevated. The impression at that time was of a secondary infection of the cephalhematoma. After treatment with hot wet dressings and with penicillin injected intramuscularly for six days without significant improvement, the cephalhematoma was incised. A thin watery material obtained from the area suggested an Esch. coli infection, which was confirmed by culture study. At this time the sensitivity report read: "sensitive to Chloromycetin, streptomycin and terramycin; moderately sensitive to Aureomycin."

Oxytetracycline therapy, 25 mg. per kilogram of body weight every 24 hours, was instituted and continued for a month. After that period, the head returned to normal size and has remained so during one and one-half years of close observation. The infant appears normal in every respect.

TREATMENT

Occasionally among the wide-spectrum antibiotics, one drug is more specific against an organism than another. It is important that the drug chosen have the widest spectrum of bacterial activity; otherwise decisive time may be lost because of a less active drug. In the case presented, the organism had not been identified; therefore, penicillin and chlortetracycline were chosen in combination. The antagonism of drugs was considered. Inasmuch as it was not known which would be the more efficacious, both drugs were used. Therapy

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From the Children's Department, Illinois Masonic Hospital.

[1] Hoyne, A. L., and Brown, R. H.: Staphylococcic Meningitis: Its Rarity in the Newborn, Arch. Pediat. 65: 175-182 (April) 1948.

[2] Epstein, J. A., and Goldzier, S. E., II: Bilateral Encapsulated Subdural Effusion Complicating Bacterial Meningitis in Infancy: Report of Case with Review of Literature, A. M. A. Arch. Neurol. & Psychiat. 69: 242-249 (Feb.) 1953.

[3] Kagan, B. M.; Hess, J. H.; Mirman, B., and Lundeen, E.: Meningitis in Premature Infants, Pediatrics 4: 479-483 (Oct.) 1949.

was readjusted when the identity of the organism became known. Laboratory tests indicated only moderate sensitivity of the organism to chlortetracycline; nevertheless, clinically it appeared that the child was reacting well to the medication, as indicated by lowered temperature and decreasing prominence of the fontanel. For this reason, it was decided to make no changes.

COMMENT

What relationship existed between the meningitis and the cephalhematoma is not clear. The cephalhematoma might have become secondarily infected, although no signs of fracture were seen in the roentgenogram.[4] Kendall and Woloshin [4] have reported that in cephalhematomas there is a 25% incidence of skull fracture in the same area. A similar case has been reported of a cephalhematoma that was sterile on aspiration.[5]

SUMMARY AND CONCLUSIONS

A 5-day-old infant who developed an Escherichia coli meningitis was followed for one and one-half years. Mental and physical development has been normal. Delay in diagnosis of the primary condition is generally the cause of poor results. It is emphatically important to identify the causative organism. Culture studies are therefore necessary. Clinical judgment in therapy, however, takes precedence over laboratory reports.

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[4] Kendall, N., and Woloshin, H.: Cephalhematoma Associated with Fracture of the Skull, J. Pediat. **41**: 125-132 (Aug.) 1952.

[5] Cohen, S. M.; Miller, B. W., and Orris, H. W.: Meningitis Complicating Cephalhematoma, J. Pediat. **30**: 327-329 (March) 1947.

ABSCESS OF THE EPIGLOTTIS

PROBLEM IN DIFFERENTIAL DIAGNOSIS

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Jerome Raim, M.D.
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The following report concerns the case of a patient with acute epiglottic abscess of Pseudomonas origin. This case report serves to illustrate the difficulty of differentiating epiglottic abscess from an attack of bronchial asthma. Primary abscess of the epiglottis is a rare entity. Epiglottic abscess formation is more frequent in adults than children. In a 10 year period at the Graduate Hospital of the University of Pennsylvania only four cases of epiglottic abscess in adults were observed. They most commonly occurred as a complication of acute pharyngitis associated with abscess of the lingual tonsil.[1] The pathogenic micro-organisms vary. Streptococci are isolated most frequently. In a report of 13 cases of epiglottic suppuration in which cultures were taken, Streptococcus hemolyticus was found in pure culture in 6 cases. Other organisms reported were Hemophilus influenzae, Escherichia coli, Pseudomonas aeruginosa, Micrococcus catarrhalis, Micrococcus (Staphylococcus) aureus, and pneumococci.[2]

REPORT OF A CASE

A 42-year-old man came into the emergency ward of Jackson Memorial Hospital complaining of shortness of breath of two hours' duration. Nine hours prior to admission, the patient ate a hamburger and shortly thereafter became nauseated. In an attempt to induce vomiting, he put his finger down his throat and vomited and immediately had the feeling that "something was stuck in his throat." Shortly afterwards, he experienced pain and dysphagia. Past history of significance revealed asthma since childhood and recurrent attacks of acute tonsillitis. Physical examination revealed a well-developed, extremely muscular white man with a thick, bull neck. When first seen, approximately eight hours after vomiting, he was extremely apprehensive, but no dyspnea was noted. The temperature was 101 F (38.3 C) rectally, respirations 34, and pulse rate 140 per minute. His mucous membranes were observed to be pink, although his face was cyanotic. The nares were clear. The anterior tonsillar pillars and posterior pharynx were deeply erythematous. The palatine tonsils were both enlarged, met in the midline, and were intensely edematous and infected. Inspiratory and expiratory rales were heard throughout both lung fields. No suprasternal, intercostal, or sternal retraction was noted.

The patient was given 200 mg. of phenobarbital (Luminal) intramuscularly, 50 mg. of diphenhydramine (Benadryl) hydrochloride, and 0.5 gm. of aminophylline intravenously. He became steadily worse. Dyspnea was now apparent, and the patient became more apprehensive. He suddenly developed a crowing inspiratory stridor, extreme hoarseness, and marked cyanosis, and then he lost consciousness. A blood pressure reading could not be obtained. A tracheotomy was done immediately. When an airway was established, the patient regained consciousness; however, dyspnea persisted for some period of time. A posterior pharyngeal culture was obtained at this time. With the tracheotomy tube in place, a gloved finger was used to palpate the pharynx. Palpation revealed marked swelling and edema of both tonsils. The right posterior pharyngeal area was indurated. An indirect laryngeal examination could not be done at this time because of marked edema. The day following admission another throat culture was taken. The patient could not swallow, and he was maintained on intravenously administered fluids. Treatment with combined penicillin and dihydrostreptomycin (Combiotic) was started. The first culture obtained grew a pure culture of Pseudomonas. Sensitivity studies were not returned for several days, and because of the dysphagia, nitrofurantoin (Furadantin), 100 mg. dissolved in a glass of water was used as a gargle by the patient three times a day.

The second culture grew Pseudomonas, alpha Streptococcus, and Micrococcus catarrhalis. Pseudomonas sensitivity studies when obtained revealed: chloramphenicol (Chloromycetin), streptomycin, dihydrostreptomycin, and polymyxin, slightly sensitive; chlortetracycline (Aureomycin), oxytetracycline (Terramycin), bacitracin, and penicillin, resistant; nitrofurantoin studies were not obtained. The second day after admission an indirect laryngoscopy examination was performed. The vocal cords appeared normal, but the epiglottis was large, red, and edematous. In the center of the epiglottis, an elevated yellow area was seen. This appeared to be open and draining. Daily indirect mirror examinations of the epiglottis revealed the edema, erythema, and the size of the abscess to be steadily decreasing as was the tonsillar swelling and dysphagia. Seven days after admission the patient's temperature returned to normal and mirror examination revealed that all epiglottic edema and exudate had disappeared. The tracheotomy tube was withdrawn after a well-tolerated trial period of complete blockage.

COMMENT

This case report illustrates an actual problem in differential diagnoses between an acute bronchial asthmatic attack and an acute upper repiratory obstruction. In this case a history of bronchial asthma was present, along with that of frequent attacks of acute tonsillitis. Asthmatic

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From the Department of Surgery, Jackson Memorial Hospital, and the University of Miami School of Medicine.

[1] Noone, E. L., and Shields, W. P.: Abscess of Epiglottis in Infant: Case Report, J. Pediat. **11**: 556-558 (Oct.) 1937.

[2] Weiss, J. A.: Primary Abscess of Epiglottis, J. A. M. A. **98**: 552-553 (Feb. 13) 1932.

rales as well as tonsillar and pharyngeal injection were present. Dyspnea was evident, but no retraction could be seen. A diagnosis of an acute asthmatic attack was made, but the more urgent pathology of epiglottic abscess, edema, and upper respiratory obstruction was not noted until later. The causative organism is interesting in its rarity.

SUMMARY

A case of Pseudomonas abscess of the epiglottis was proved by smear and culture. The problem exists of diagnosis between an acute asthmatic attack and upper respiratory obstruction.

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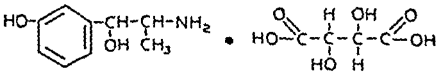
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

H. D. Kautz, M.D., *Secretary.*

Metaraminol Bitartrate.—$C_9H_{13}NO_2.C_4H_6O_6$.—M.W. 317.29.—*l*-*α*-(1-Aminoethyl)-*m*-hydroxybenzyl alcohol hydrogen *d*-tartrate.—*l*-1-(*m*-Hydroxyphenyl)-2-amino-1-propanol hydrogen *d*-tartrate.—The structural formula of metaraminol bitartrate may be represented as follows:

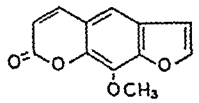


Actions and Uses.—Metaraminol bitartrate, a sympathomimetic amine compound, has vasoconstrictor properties similar to those of ephedrine, but it is more potent and it exhibits less of the central stimulant effects of that drug. It also exhibits both the action of the aromatic hydroxy-substituted compounds and the prolonged effect of the isopropylamines. Metaraminol bitartrate is used topically as a nasal decongestant in the symptomatic relief of nasal edema accompanying the common cold, rhinitis, sinusitis, and nasopharyngitis. It provides relatively prolonged shrinkage of the nasal mucous membranes with virtually no stinging, irritation, or secondary engorgement. Depression of ciliary activity is minimal. Clinical use has revealed no evidence of undue central stimulation. Undesirable side-effects such as tremor, palpitation, tachycardia, and insomnia seldom occur when the drug is administered as indicated; however, because of its vasoconstricting action, care must be taken not to exceed the stated dosage.

Dosage.—Metaraminol bitartrate is administered topically as an isotonic solution containing 0.25% of the base, buffered to a pH of 6, which is within the range of normal nasal secretion. It may be applied with a dropper or an atomizer. The solution should be at room temperature or slightly above for application. The usual dose is 2 or 3 drops or one or two sprays in each nostril, which may be given every 3 hours but not more than four times daily. Treatment may be continued for a period not to exceed one week. The 0.25% solution also may be applied to tampons for intranasal application.

Sharp & Dohme, Division of Merck & Co., Inc., cooperated by furnishing scientific data to aid in the evaluation of metaraminol bitartrate.

Methoxsalen.—$C_{12}H_8O_4$.—M.W. 216.20.—δ-lactone of 3-(6-hydroxy-7-methoxybenzofuranyl)acrylic acid.—8-Methoxypsoralen.—Xanthotoxin.—The structural formula of methoxsalen may be represented as follows:



Actions and Uses.—Methoxsalen, a methoxypsoralen derivative, increases the production of melanin pigment in the skin when exposed to ultraviolet light. Oral administration of the drug decreases, whereas topical use increases, the erythemic response of the skin to ultraviolet rays, possibly because local application produces a higher skin concentration. Methoxsalen is useful for the treatment of idiopathic vitiligo when used in conjunction with exposure of affected areas of the skin to ultraviolet light. Sunlight having an effective ultraviolet component is preferable as a source of such radiation, but a suitable artificial source can be employed effectively. Methoxsalen therapy is not of value in patients who cannot be exposed to ultraviolet light. Methoxsalen has no effect on leukoderma associated with the destruction of melanocytes, which occurs following severe burns and trauma; also it is not known to influence leukoderma consequent to infections such as pinta or leprosy.

Methoxsalen is extremely potent and should be employed only under medical supervision to avoid overdosage and potential toxic effects. Serious burning of the skin can result from incorrect topical use. Whenever blistering occurs, topical application and exposure to sun or ultraviolet lamp should be discontinued. Oral medication may be maintained unless edema occurs at time of blistering. Oral use then should be discontinued until edema is corrected. If acute dermatitis develops, it should be treated before resuming topical therapy. Oral therapy may be unwise in patients with only a few isolated areas of depigmentation, because of the increased danger of systemic toxic effects. Oral administration occasionally is associated with unpleasant side-effects such as gastric irritation, nausea, nervousness, insomnia, and depression. If these occur, oral dosage should be reduced. Since the drug is potentially hepatotoxic, it is contraindicated in the presence of hepatic insufficiency or diabetes mellitus. Liver function tests should be performed monthly on all patients for the first three months and at less frequent intervals throughout the course of therapy. Physicians should weigh the relative importance of possible psychological benefits against potential harmful effects in the employment of methoxsalen therapy for a benign cosmetic disease such as vitiligo.

Dosage.—Methoxsalen is administered orally and/or topically and only in conjunction with appropriate exposure of the affected skin to ultraviolet rays. Since topical application can be applied to only a few lesions at a time, oral therapy is more suitable for patients with extensive areas of depigmentation. Oral therapy also may be employed in conjunction with topical application, provided the locally treated areas, which thus are rendered more susceptible to ultraviolet rays, are protected from overexposure. Examination of the skin under Wood's light before and during treatment will aid in estimating varying degrees of depigmentation and repigmentation as a guide to therapy.

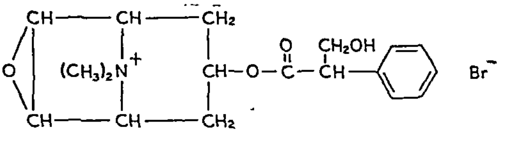
The suggested oral dosage for adults is 20 mg. once daily, administered approximately 2 hours prior to ultraviolet exposure. For children 1 to 6 years of age, an oral dosage of 10 mg. once daily, similarly timed, is suggested; for those 6 to 12 years of age, a dosage of 10 to 20 mg. once daily is suggested. Oral medication may be followed by a drink of milk and/or the use of a sedative to minimize side-effects. When oral therapy is employed alone, the vitiliginous skin is exposed to sunlight or a suitable artificial source of ultraviolet light for 5 minutes daily. This should be increased slowly until the affected areas are being exposed for at least 30 minutes after each oral dose.

Topical therapy is applied in the form of a 1% lotion. It should be applied only once weekly and to only a few of the depigmented areas, followed by exposure of the treated areas to ultraviolet light for a period not to exceed one minute. When an artificial source of ultraviolet light is employed, the initial exposure should be made with one-half the minimal erythemic dose. It is desirable to alternate the sites of weekly topical applications in order to prevent severe erythema and to promote uniform repigmentation.

When oral medication is to be employed concomitantly with topical therapy, it is absolutely essential to protect the topically treated areas from daily exposure to ultraviolet light, or severe burning will result. In conjunction with the stated oral dosage and topical concentration, the locally untreated and topically treated areas should be exposed to ultraviolet rays only as indicated previously. Although repigmentation may begin to show in some patients within a few weeks, other patients may require therapy for as long as 6 months before improvement is observed.

Paul B. Elder Company cooperated by furnishing scientific data to aid in the evaluation of methoxsalen.

Methscopolamine Bromide.—$C_{18}H_{24}BrNO_4$.—M.W. 398.30.—Epoxytropine tropate methylbromide.—The structural formula of methscopolamine bromide may be represented as follows:



Actions and Uses.—Methscopolamine bromide, a parasympatholytic agent, produces the antisecretory and antispasmodic actions characteristic of anticholinergic drugs. It has greater selectivity than atropine in blocking vagal nerve impulses concerned with gastric secretion, and it is capable of suppressing both the volume and the acidity of gastric secretion. Methscopolamine bromide also delays gastric emptying and reduces peristaltic activity of the intestinal tract. The drug also inhibits salivary secretion and sweating.

Methscopolamine bromide is useful as an adjunct in the management of peptic ulcer, certain forms of gastritis associated with hyperacidity and hypermotility, hypermotile dysfunction of the intestinal tract such as functional diarrhea (irritable bowel, mucous colitis, spastic colon) and diarrhea associated with extensive bowel resections and ileostomies, hyperhydrosis or sweating that aggravates certain dermatoses, and excessive salivation. Its effectiveness in biliary dyskinesia or for ureteral and vesical spasm has not been established.

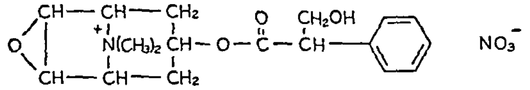
In doses exceeding those usually required to produce its peripheral atropine-like effects, methscopolamine may induce a ganglionic blocking action similar to that of tetraethylammonium chloride. Its ganglionic blockade potency is about 60% that of tetraethylammonium, and doses of methscopolamine sufficient to induce such action may produce serious side-effects. With still higher doses, the drug produces a toxic curare-like blocking action at the myoneural junction.

The most commonly reported side-effects are dryness of the mouth, constipation, and blurring of vision caused by the cycloplegic and mydriatic actions of the drug. Because of the latter, the drug is contraindicated in patients with glaucoma. Less commonly observed side-effects are difficult urination, dysphagia, heartburn, dizziness, palpitation, flushing or excessive dryness of the skin, drowsiness, headache, and nausea. The occurrence or degree of some of these side-effects frequently diminishes with continued administration of the drug or after temporary withdrawal and reduction in dosage. Chewing gum may mitigate mouth dryness. Patients who experience blurred vision should be warned against operating vehicles or other machinery. Constipation, caused by reduction in intestinal motility, also may be troublesome. Because of the action of the drug in delaying gastric emptying, it should be used cautiously, if at all, in pyloric obstruction. Caution likewise is necessary in prostatic hypertrophy, in patients with a history of urinary retention caused by other anticholinergic drugs, and in patients generally intolerant to anticholinergic therapy or in whom the desired actions are not obtained before the dosage approaches toxic levels.

Dosage.—Methscopolamine bromide is administered orally. The usual daily oral dosage for adults is 2.5 to 5 mg. administered one-half hour before meals and at bedtime. The bedtime dose may be as high as 10 mg. Dosage must be individualized, and, unless the symptoms associated with the condition under treatment are unusually severe, it is advisable to begin therapy with the minimum doses. This is essential in patients with a history of intolerance to anticholinergic drugs. In peptic ulcer, control of symptoms with small doses usually can be achieved in conjunction with appropriate use of antacids and management of the diet. When symptoms are severe, the higher dose level may be administered initially, but it should be reduced if unpleasant side-effects develop. When the minimum doses are ineffective initially, they may be increased gradually to tolerance until the desired response occurs. If severe side-effects appear, therapy should be temporarily discontinued and then resumed at a lower dose level. When side-effects overshadow the desired action, the drug should be completely withdrawn.

The Upjohn Company cooperated by furnishing scientific data to aid in the evaluation of methscopolamine bromide.

Methscopolamine Nitrate.—$C_{18}H_{24}N_2O_7$.—M.W. 380.41.—Epoxytropine tropate methylnitrate.—The structural formula of methscopolamine nitrate may be represented as follows:



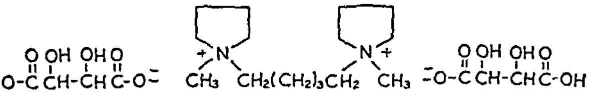
Actions and Uses.—Methscopolamine nitrate is a parasympatholytic agent that has the same actions, uses, and contraindications as methscopolamine bromide. See the monograph on methscopolamine bromide.

Dosage.—Methscopolamine nitrate is administered orally or parenterally by either subcutaneous or intramuscular injection. Injection of the drug should be reserved for patients requiring unusually prompt action or in whom oral medication is not feasible. The dosage of methscopolamine nitrate is approximately equal to that for methscopolamine bromide since, on the basis of their molecular weights, the same amount of the nitrate salt contains only slightly more of the base.

The usual oral dosage for adults is 2 to 4 mg., administered one-half hour before each meal and upon retiring. The duration of action of a single dose is about 6 hours after absorption into the blood. A 2 mg. dose in enteric coated form to delay action of the drug can be given at bedtime to provide a more prolonged effect. Larger daily or bedtime doses may be required for severe symptoms. The total daily oral dosage should not exceed 12 mg. In peptic ulcer small doses usually are adequate to control symptoms when used in conjunction with appropriate dietary measures and antacids. The usual parenteral dose for adults is 0.25 to 0.5 mg. injected in a suitable solution, either subcutaneously or intramuscularly, three or four times daily until oral medication can be instituted.

R. J. Strasenburgh Company cooperated by furnishing scientific data to aid in the evaluation of methscopolamine nitrate.

Pentolinium Tartrate.—$C_{23}H_{42}N_2O_{12}$.—M.W. 538.61.—Pentamethylene-1,1′-bis-(1-methylpyrrolidinium bitartrate).—The structural formula of pentolinium tartrate may be represented as follows:



Actions and Uses.—Pentolinium tartrate, a quaternary ammonium compound, is a potent ganglionic blocking agent, qualitatively similar in action to tetraethylammonium and hexamethonium compounds. It inhibits the transmission of nerve impulses mediated through both sympathetic and parasympathetic ganglions of the autonomic nervous system. Blocking of sympathetic ganglions, which mediate impulses causing vasospasm, particularly in the lower extremities, produces increased blood flow and hypotension. Similar interference with parasympathetic stimuli may produce loss of ocular accommodation, decrease or cessation of motility of the gastrointestinal tract, and alteration of bladder function. The dose of pentolinium required to produce ganglionic blockade is smaller than that of hexamethonium, and it has a longer duration of action, necessitating less frequent administration. When administered orally, pentolinium tartrate appears to exert less costive effect than does hexamethonium chloride. Tolerance to pentolinium develops with continued use, as with hexamethonium, but a significant degree of cross tolerance has not been observed.

Pentolinium tartrate is useful clinically in the selective management of severe, moderately severe, and malignant stages of hypertension. Ganglionic blockade usually is more effective for controlling severe episodic elevations of blood pressure than for mild labile hypertension. Like other ganglionic blocking agents, the drug may be expected to prove beneficial in the diagnosis and treatment of peripheral vasospastic disorders, but appropriate clinical studies will be required to determine its usefulness, route of administration, and dosage for that purpose.

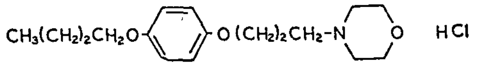
Pentolinium tartrate is associated with the same side-effects as other ganglionic blocking agents. Parasympathetic blockade may produce blurring of vision and dryness of the mouth. Urinary retention or delayed emptying of the bladder may occur, especially in older patients with prostatic enlargement. The hypotensive effect of sympathetic blockade usually predisposes patients to some degree of postural hypertension and syncope. Overdosage may induce peripheral circulatory collapse. Its use is dangerous in patients who have lost blood recently because the drug blocks normal compensatory vasoconstrictor mechanisms. As the drug is more slowly and less completely absorbed orally than parenterally, larger oral doses are required to produce the same effect. Either injection or oral administration may be associated with constipation or diarrhea, depending on the dominance of sympathetic or parasympathetic blockade, but constipation is more commonly encountered, especially when the drug is given orally. The oral costive effect aggravates erratic absorption and may lead to an exaggerated response to the drug unless strict attention is paid to maintaining regular bowel evacuation. The drug is contraindicated in organic pyloric stenosis, recent myocardial infarction, severe coronary insufficiency, and cerebral arteriosclerosis (encephalopathy). Renal disease is not an absolute contraindication, except when impairment of renal function can lead to systemic accumulation of the drug or when lowered blood pressure leads to further renal insufficiency, as in patients with a blood urea nitrogen above 80 mg. per 100 cc. that persists in the presence of lowered blood pressure.

Dosage.—Pentolinium tartrate is administered orally or by intramuscular or subcutaneous injection only. Slow dissociation of the bitartrate ion makes response to the drug unpredictable when given intravenously. Dosage is expressed in terms of the salt. Injection therapy preferably should be instituted in the hospital. In hypertension the dosage of the drug should be aimed at producing a gradual decrease in blood pressure and care must be taken in estimating dosage to distinguish between casual (office) versus basal (home) blood pressure determinations. The initial single parenteral dose should not exceed 3.5 mg., and, in patients known to be susceptible to the drug, 2.5 mg. If this dose does not produce the desired response, increments of 0.5 to 1 mg. then are administered at not less than 4 to 6 hour intervals to avoid cumulative effect. Maximum effect usually occurs 2 hours after each injection. When an effective dose is established, this can be supplemented with smaller doses at 6 to 8 hour intervals until a satisfactory daily regime is achieved for the individual patient. The total effective parenteral daily dosage usually ranges from 30 to 60 mg., divided as indicated previously. Patients should be requested to lie down if giddiness occurs and should not be permitted to rise suddenly after injection.

The initial oral dosage should be 20 mg. every 8 hours for 2 to 7 days in ambulatory patients and for 2 to 3 days in hospitalized patients. Increases in oral dosage of 20 mg. are then made at 2 to 7 day intervals until the minimum effective dosage is reached. The total oral daily dosage may vary from as low as 60 mg. to as high as 600 mg. in exceptionally refractory cases. Termination of hypotensive therapy by either route should not be abrupt unless severe side-effects supervene. Severe postural hypotension may be combated by the administration of vasopressor drugs, pending readjustment in dosage of pentolinium. Physostigmine or pilocarpine may be used to overcome blurring of vision or severe mouth dryness. The drug should be temporarily discontinued if constipation cannot be controlled.

Wyeth Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of pentolinium tartrate.

Pramoxine Hydrochloride. — $C_{17}H_{27}NO_3.HCl$. — M.W. 329.88. — 4-[3-(*p*-Butoxyphenoxy)propyl]morpholine hydrochloride.—The structural formula of pramoxine hydrochloride may be represented as follows:



Actions and Uses.—Pramoxine hydrochloride is a surface anesthetic agent chemically distinct from local anesthetic compounds of the benzoate ester type such as procaine. Its index of sensitization appears to be lower than that of procaine derivatives, and its distinct chemical structure is likely to minimize the danger of cross sensitivity reactions in patients allergic to other local anesthetics. Pramoxine hydrochloride produces satisfactory surface anesthesia and is reasonably well tolerated on the skin and less delicate mucous membranes. It should not be injected because of its tendency to irritate tissues; for the same reason it should not be used in the eye or nose.

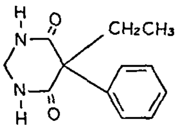
Pramoxine hydrochloride is useful topically for a variety of purposes: to relieve surface pain or itching involving external injuries such as minor burns and wounds, dermatoses, pruritic syndromes, surgical wounds such as episiotomy and hemorrhoidectomy, anal lesions and dilatations, and rectal examinations including sigmoidoscopy; to anesthetize laryngopharyngeal surfaces prior to instrumentation or to obtund laryngospasm during general anesthesia; and to facilitate endotracheal and intragastric intubation (exclusive of bronchoscopic and gastroscopic procedures). In chronic syndromes its prolonged use should be avoided, with efforts directed rather toward correction of the underlying cause.

Pramoxine hydrochloride has a low toxicity and its surface application has not been associated with serious untoward effects. Although its sensitizing potential is low, the possibility of allergic reactions should be borne in mind. Initial burning or stinging prior to the onset of anesthesia is occasionally encountered, but this should not contraindicate its application except in the eye and nose.

Dosage.—Pramoxine hydrochloride is administered topically. It is applied to the affected area in a concentration of 1% as a cream, jelly, or solution. The latter can be applied by means of a spray or gauze pads soaked in the solution. Applications usually are repeated every 3 to 4 hours. From 5 to 7 cc. of a 1% solution is required for spraying the laryngopharyngeal surface. The jelly and cream are used also for lubrication of devices for instrumentation and for digital dilatations or examinations.

Abbott Laboratories cooperated by furnishing scientific data to aid in the evaluation of pramoxine hydrochloride.

Primidone.—$C_{12}H_{14}N_2O_2$.—M.W. 218.25.—5-Ethyldihydro-5-phenyl-4,6(1H,5H)-pyrimidinedione.—5-Phenyl-5-ethylhexahydropyrimidine-4,6-dione.—The structural formula of primidone may be represented as follows:



Actions and Uses.—Primidone, a pyrimidine derivative, is related to phenobarbital but has different chemical and pharmacological properties. Animal experiments indicate that its anticonvulsant activity and toxic effects compare favorably with other similar acting drugs. By most experimental methods of comparison, the anticonvulsant potency and neurotoxicity of primidone are somewhat less than those of phenobarbital. Clinically, primidone is effective in the control of grand mal and psychomotor epilepsy, but further clinical studies are required to determine its usefulness in petit mal, minor motor, or focal types of seizures. As with all anticonvulsants, some patients who are refractory to other agents may respond to primidone and vice versa.

Primidone is readily absorbed after oral administration and uniformly distributed in the body tissues. Approximately 60 to 80% of the ingested dose is excreted in the urine within 24 hours. In therapeutic doses more than 90% of the total urinary excretion consists of approximately equal amounts of unchanged primidone and a metabolite, phenylethylmalondiamide. Although crystalluria attributed to this metabolite has been observed in experimental animals after large doses, subsequent urinary solubility studies in both animals and man indicate that crystalluria in the form of either primidone or its metabolite is unlikely to occur from therapeutic doses, except as an artifact caused by the cooling of urine below body temperature.

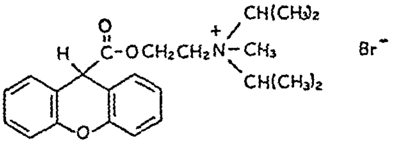
Primidone therapy is associated with undesirable side-effects, but serious toxic reactions have not been reported. No evidence of bone marrow depression or renal damage has been observed. Side-effects include drowsiness, ataxia, psychosis, vertigo, anorexia, irritability, lethargy, general malaise or fatigue, nausea, vomiting, morbilliform skin eruption, painful gums, leg edema, and nonrenal edema of the eyelids. Most side-effects are transitory or mild and may disappear with continuing therapy. When they are persistent or severe, reduction in dosage or complete withdrawal of the drug may be necessary.

Dosage.—Primidone is administered orally. In patients receiving no other anticonvulsant therapy, the usual initial dosage for children over 8 years of age and adults is 0.25 gm. once daily, preferably at bedtime. After 4 to 7 days the dosage may be increased gradually by increments of 0.25 gm. or less at weekly intervals, until the maximum therapeutic effect is attained with minimal undesirable side-effects. When the patient is receiving other anticonvulsant therapy, 0.25 gm. of primidone daily is added to the current medication. This daily dosage is then increased gradually with a concomitant corresponding decrease in the dosage of the agent to be replaced. The transition to primidone should not be completed in less than 2 weeks and, when complete replacement is clinically undesirable, combination therapy may be continued with possible advantage at lower dosage levels for both agents.

In children up to 8 years of age, therapy usually is started with 0.125 gm. of primidone a day, given at bedtime. This is increased by similar weekly increments until the optimal effect is achieved. The same initial dosage is employed for patients in this age group who are receiving another anticonvulsant drug, and, as with adults, gradual increments in primidone dosage should be accompanied by corresponding reductions in the dosage of the drug that is to be partially or completely supplanted. A maximum total daily dosage of 2 gm. should not be exceeded. When the drug is to be discontinued or replaced by other agents, its withdrawal should be gradual unless serious toxic manifestations require immediate cessation of primidone.

Ayerst Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of primidone.

Propantheline Bromide. — $C_{23}H_{30}BrNO_3$. — M.W. 448.42. — β-Diisopropylmethylaminoethyl 9-xanthenecarboxylate bromide. — β-Diisopropylaminoethyl xanthene-9-carboxylate methobromide. — The structural formula of propantheline bromide may be represented as follows:



Actions and Uses.—Propantheline bromide, the isopropyl analogue of methantheline bromide, has the same cholinergic blocking actions, uses, and side-effects. (See New and Nonofficial Remedies under the monograph on methantheline bromide.) Propantheline bromide is somewhat more potent (effective in smaller doses) and exhibits less severe, though not less frequent, side-effects. It should be used with the same precautions as methantheline bromide.

Dosage.—Propantheline bromide is administered orally or parenterally by either intramuscular or intravenous injection. Parenteral administration should be reserved for patients unable to take the drug orally. The average oral dosage for adults is 15 mg. three times daily with meals and 30 mg. at bedtime. For control of patients with peptic ulcer, more than the 15 mg. unit dosage is frequently required and some patients may require up to 60 mg. four times daily or an additional dose about the middle of the night. The average parenteral dosage for adults is 30 mg. every 6 hours intramuscularly or intravenously. For intravenous administration, a dose of 30 mg. should be dissolved in not less than 10 cc. of water for injection. Dosage always should be adjusted to the minimum required to control parasympathomimetic symptoms and should be in accordance with suitable dietary measures and other medication that may be indicated.

G. D. Searle & Co. cooperated by furnishing scientific data to aid in the evaluation of propantheline bromide.

Radio-Gold (Au^{198}) Colloid.—Radio-gold colloid is a radioactive isotope of gold. The radiations emitted by the isotope are negative beta particles and gamma radiations. The half-life of the isotope is 2.7 days.

Actions and Uses.—Radio-gold (Au^{198}) colloid is a colloidal concentrate of radio-gold (Au^{198}) from which suitably dilute solutions are prepared for parenteral injection. The radio-gold particles in the colloid range from 0.003 to 0.007 μ in diameter. The isotope, radio-gold (Au^{198}), is prepared from stable gold (Au^{197}) by neutron bombardment in a nuclear reactor. It has a half-life of 2.7 days and its radiation consists essentially of 0.97-Mev beta and 0.411-Mev gamma rays. Its mean effective life is 3.9 days, and about 95% of the radiation is delivered in 11 days. The colloid is quite stable to heat, but it should not be autoclaved under pressure. It may be mixed with saline or local anesthetic solutions, radiopaque mediums, pectin, and other agents, but it is readily flocculated by metallic ions such as aluminum.

Radio-gold (Au^{198}) colloid, given by intracavitary injection, is useful in dilute solutions for the irradiation of closed serous cavities in the palliative treatment of ascites and pleural effusion associated with metastatic malignancies. Dilute solutions also may be employed as a palliative prophylactic against the dissemination of tumor cells after surgical exposure and/or removal of tumors from these serous cavities, provided healing of the surgical wound by primary intention has begun. In the peritoneal or pleural cavities the radio-gold particles are absorbed on the walls in aggregates, which are then phagocytosed; some may be dispersed by transport via the lymphatics. The exact mechanism of intracavitary action is unknown. Although there is no evidence that it prolongs life, it contributes to the comfort of cancer patients by reducing fluid accumulation. Intracavitary administration should not be employed when the cavities are not definitely closed because of the hazard of radiological contamination by leakage, nor should it be employed when the presence of large tumor masses may indicate the need for other more effective methods of treatment. In the prophylactic intracavitary irradiation of disseminated tumor cells, the possibility of delayed healing or breakdown and leakage of subsequent surgical wounds should be kept in mind if further operative exposure becomes necessary during the effective life of the radioisotope. Intracavitary palliative irradiation with radio-gold should not be undertaken prior to establishing a diagnosis of malignant metastatic involvement.

Radio-gold (Au^{198}) colloid is not recommended for interstitial infiltration of malignant tumors such as discrete prostatic or female pelvic carcinomas and other tumor masses. Conclusive evidence is not available to indicate that its usefulness for this purpose, in comparison with other forms of treatment, is not outweighed by the hazard of radiological contamination caused by leakage from the site of deposition. Leakage may result from surgical exposure or ulcerating lesions that communicate with the exterior. The use of closed techniques for interstitial infiltration may reduce the hazard of leakage from accessible nonulcerating tumors, but this problem requires further study.

Radio-gold (Au^{198}) colloid should not be employed intravenously in the treatment of leukemia, because it is ineffective against acute leukemias and is inferior to the majority of other agents used in chronic leukemias.

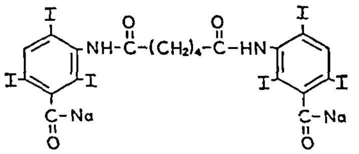
Intracavitary use may be followed by mild radiation sickness after 3 or 4 days and by decrease in the white blood cell count, which usually returns to normal within a few days after injection. Hypoplasia of the bone marrow has occurred in terminal cases treated with radio-gold colloid. Pronounced fibrosis also has been noted occasionally. Since patients become a source of radiation after treatment, appropriate evaluation of this is essential to avoid dangerous exposure of nursing and other personnel involved in their care.

It should be borne in mind in the handling of this radioisotope that the possible untoward effects of its predominant beta ray component (90 to 94%) are not completely understood and that in the use of large doses there is need for further caution to avoid excessive radiation of surrounding normal tissues by the smaller gamma ray component (6 to 10%).

Dosage.—Radio-gold (Au^{198}) colloid is administered by intracavitary injection in doses ranging from 35 to 150 mc. (millicuries). All fluid is removed from the affected cavity prior to injection, which can be made with equipment ordinarily employed for thoracentesis or paracentesis. In pleural effusion, the usual dose ranges from 35 to 75 mc. per cavity; in the larger peritoneal cavity, the dose usually ranges from 100 to 125 mc. To insure adequate distribution in the cavity, each dose should be diluted with isotonic sodium chloride solution to a volume of 250 to 500 cc., and the patient should be urged to move about occasionally after administration. If desired the colloid concentrate may be injected prior to dilution followed by instillation of the diluent. Doses should not be repeated at intervals of less than 4 weeks and then only as reaccumulation of fluid may require it. The colloid is available for shipment as a solution having an activity of 20 to 40 mc. per cubic centimeter.

Abbott Laboratories cooperated by furnishing scientific data to aid in the evaluation of radio-gold (Au^{198}) colloid.

Sodium Iodipamide.—$C_{20}H_{12}I_6N_2Na_2O_6$.—M.W. 1183.83.—Sodium N,N'-adipyl-bis(3-amino-2,4,6-triiodobenzoate).—Sodium iodipamide is prepared by dissolving the free acid in dilute sodium hydroxide and buffering the solution to pH 6.5-7.7. The salt is not isolated from the solution. The structural formula of sodium iodipamide may be represented as follows:



Actions and Uses.—Sodium iodipamide, a radiopaque water-soluble organic iodine compound, is useful as a roentgenographic contrast medium for intravenous cholangiography and cholecystography to visualize the biliary ducts and gallbladder when these structures or their contents cannot be adequately demonstrated by oral or intraductal contrast mediums. It is not recommended for routine gallbladder series, but for the specific indications noted subsequently. Intravenous cholangiography may be particularly useful for nonsurgical visualization of the biliary ducts, especially in patients with postcholecystectomy syndrome, and for cholecystography prior to surgery when the gallbladder has lost its power to concentrate bile. Intravenous administration may permit visualization of biliary structures in patients who are unable to ingest or absorb oral mediums and who cannot be depended upon to take the prescribed dose. Intravenous cholecystography also may be indicated when rapid visualization is essential for differential diagnosis in emergencies and prior to surgery. It is likewise suitable for cholecystography in infants and small children.

After intravenous administration, sodium iodipamide is promptly and rapidly excreted by the liver, the first traces appearing in the bile within several minutes. Within 15 to 20 minutes, a sufficient amount usually has accumulated to produce radiopacity of the hepatic and common bile ducts. Relatively high concentrations are found within 20 to 25 minutes. Concentrations in the bile may reach 30 to 100 times those in the blood. About one hour after injection, it begins to enter the gallbladder; generally the highest concentration is reached in 2 to 2½ hours. About 90% is finally eliminated in the feces, without absorption into the enterohepatic circulation. Unless liver function is impaired, about 10% or less generally is excreted by the kidneys. In the presence of liver damage, it is excreted by the kidneys in about the same time as that required by the normal liver.

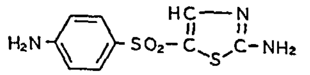
Sodium iodipamide given intravenously usually is well tolerated when administered slowly. Transient restlessness, sensations of warmth, pressure in the upper abdomen, nausea, and vomiting may occur, especially after too rapid administration. Severe reactions have been observed only rarely. It should not be administered to individuals hypersensitive to iodine. It is also contraindicated in patients with hyperthyroidism or with severe impairment of renal function. It should be used with caution in the presence of jaundice or impairment of liver function, especially when the latter is severe or associated with renal dysfunction.

Dosage.—Sodium iodipamide is administered as a 20% solution by slow intravenous injection into the antecubital vein for either cholangiography or cholecystography. An average of 10 minutes should be taken to complete injection of the usual dose. A preliminary test for sensitivity by either intradermal injection of 0.1 cc. or conjunctival instillation of two drops should be made prior to intravenous administration. Appearance of an intradermal wheal or an inflammatory reaction of the conjunctiva within 10 to 15 minutes indicates hypersensitivity.

The usual intravenous dose for adults is 40 cc. of a 20% solution (8 gm.). In thin asthenic patients, 20 cc. (4 gm.) may be adequate. For visualization of the biliary ducts, after usual preliminary preparation for cholecystographic procedures and a "scout film," the patient should be placed in a supine position with the left side elevated about 15 to 30 degrees. Serial roentgen ray exposures at 10 minute intervals should be started 20 minutes after intravenous injection and continued until optimal visualization is obtained. For examination of the gallbladder, exposures are made in the standard positions beginning about 1½ to 2 hours after injection. Additional exposures are made after ingestion of a fat meal. For infants and young children, an intravenous dosage of 0.6 to 1.2 cc. of a 20% solution (0.12 to 0.24 gm.) per kilogram of body weight may be used for cholecystography. A solution of the drug may be stored at room temperature but should be protected from strong light. Solutions kept in the syringe for prolonged periods of time prior to injection also should be protected from strong light.

E. R. Squibb & Sons, Division of Olin Mathieson Chemical Corporation, cooperated by furnishing scientific data to aid in the evaluation of sodium iodipamide.

Thiazolsulfone.—$C_9H_9N_3O_2S_2$.—M.W. 255.31.—2-Amino-5-sulfanilylthiazole.—The structural formula of thiazolsulfone may be represented as follows:



Actions and Uses.—The actions of thiazolsulfone are similar to those of glucosulfone sodium; however, it is less toxic and may be administered orally. The urine of patients receiving the drug may become pink to cherry red in color, caused by the formation of an unidentified dye as a degradation product. The indications for use are the same as those for glucosulfone sodium, but thiazolsulfone seems to be of less value than other sulfones in the treatment of leprosy. The drug may be used in conjunction with streptomycin in the treatment of tuberculosis.

Although thiazolsulfone appears to be relatively free from toxic effects, vomiting, slight cyanosis, methemoglobin formation, and leukopenia occur occasionally. Thyroid enlargement occurs after 2 to 5 months of treatment, and in young persons, prolonged treatment may cause the development of secondary sex characteristics without true sexual maturation.

Dosage.—For adults the initial daily dose should not exceed 4 to 6 gm. given in divided doses. This dose may be increased after the first week by increments of 1 gm. daily until the level of tolerance is reached. For children, the initial daily dose should be 1 gm. given in two divided doses and increased slowly until a blood level of 2 to 3 mg. per 100 cc. is maintained, or until a total daily dose of 5 gm. is reached. After 6 months of treatment, dosage should be reduced to a maintenance level of 1 gm. daily. Any evidence of intolerance or intoxication is an indication for reduction in dosage or cessation of therapy.

Parke, Davis & Co. cooperated by furnishing scientific data to aid in the evaluation of thiazolsulfone.

Crystalline Trypsin.—Crystalline trypsin is a purified preparation of the pancreatic enzyme derived from mammalian glands.

Actions and Uses.—Crystalline trypsin exerts its characteristic proteolytic action upon contact with clotted blood, exudate, and necrotic tissue within a pH range of 5 to 8, optimal at about pH 7. It is inactive on and not harmful to viable tissue because of the presence in serum of a specific trypsin inhibitor and nonspecific inhibitory substances. Such inhibition likewise limits the duration of its proteolytic effect on coagulated blood and exudate.

Crystalline trypsin is useful as an adjunct to surgical management for débridement of necrotic wounds and ulcers, abscesses, empyemas, sinuses, and fistulas. It is also useful to separate eschar from second degree burns and to liquefy hematomas, including intrapleural blood clots in hemothorax. It is not nearly as effective for removal of necrotic tissue as for liquefaction of coagulated blood and exudate. It is chiefly effective in cavities and infected joint spaces where the anatomic configuration permits adequate incubation before extravasation of serum and inactivation of the enzyme can occur. Its action in such cavities also is limited to hematomas and exudate that have not become organized by fibrous tissue. Special caution is necessary in tuberculous empyema because of the possibility that digestion of coagulated exudate may lay bare diseased areas of the visceral pleura and favor the development of a bronchopleural fistula. It should be employed with similar caution in preexisting bronchopleural fistula caused by tuberculosis.

The toxic effects of crystalline trypsin are negligible when the drug is applied topically by local infiltration or irrigation and by intrapleural instillation. When administered by hypodermic infiltration or by instillation into closed cavities or spaces, it produces a histamine-like effect consisting of a mild elevation of temperature and an increase in pulse rate. This reaction may be prevented by preliminary administration of an antihistaminic drug. The enzyme should not be injected into areas of acute inflammation or into normal tissue. On surface lesions, the dry form of the enzyme may produce a severe burning sensation occasionally, especially when the blood supply is poor. A topical anesthetic may be used prior to surface application or antihistaminic medication can be used to alleviate local stinging and pain.

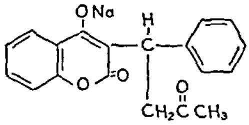
Crystalline trypsin is contraindicated in severe hepatic insufficiency such as acute yellow atrophy or advanced cirrhosis of the liver. Application to actively bleeding cavities also is definitely contraindicated. Likewise it should not be used for débridement of ulcerated carcinomas because of the danger of extending the malignancy. Sensitization or antigenic reactions have not been observed, but this possibility should be kept in mind. The inhalation of an aerosol to liquefy and stimulate expectoration of excessive bronchial secretions is not advised because the questionable clinical benefit of this procedure is outweighed by irritant side-effects. Topical preparations never should be administered intravenously.

Dosage.—Crystalline trypsin is applied to surface lesions either in dry form by means of a powder blower or in a freshly prepared suitable buffer solution by means of wet dressings. For less accessible lesions, such as abscesses, sinuses, and fistulas, the solution may be infiltrated, instilled, or used as an irrigant with a syringe and needle or small catheter; the dry form placed in small gelatin capsules also can be implanted in sinus or fistulous tracts that are difficult to irrigate. For intrapleural administration, the technique of thoracentesis is used; aspiration and irrigation to remove retained fluid should precede instillation of the enzyme. Aspiration 2 hours after each instillation into cavities is advisable to avoid untoward effects.

Crystalline trypsin is assayed for potency on the basis of its decomposition of hemoglobin and the comparative reaction of substances so liberated with that of tyrosine against a standard reagent. The activity is expressed in units or milligrams; 1,000 units is equivalent to 1 mg. of tyrosine or to 1 mg. of lyophilized crystalline trypsin. Crystalline trypsin is stable indefinitely in dry form at room temperature, but, when placed in a suitable buffer solution, 75% of its activity is dissipated within 3 hours. Thus only fresh solutions should be used for wet dressings or for instillation, infiltration, and irrigation. With either dry or wet applications of the enzyme, it is desirable to determine the pH of accessible lesions prior to instituting therapy; this can be determined with the use of nitrazine paper. When the pH is outside the range of 5 to 8 or the lesions are incrusted or dry, the area to be treated should be irrigated or brought into continuous contact for several minutes with Sorensen's phosphate buffer solution before application of the dry powder. For such lesions, wet dressings are prepared by using a fresh solution of 250 mg. (equivalent to 250,000 units) of the crystalline enzyme in 25 cc. of Sorensen's buffer solution as a diluent. That amount usually is adequate also for intrapleural instillation; however, dosage is dependent upon the size, character, and location of the lesion to be treated. Wet dressings and irrigations should be repeated every 3 hours. When the dry powder is used on surface lesions, a thick coating should be applied and maintained. For small areas the powder may be reapplied every 15 to 30 minutes; for large areas reapplication should be made at least every 3 hours. For capsule implantation in sinus or fistulous tracts, the dose is limited by the number and size of capsules that can be inserted. When infiltration or instillation of the solution is employed, this may be repeated once or twice daily as indicated by the condition of the lesion under treatment.

The Armour Laboratories cooperated by furnishing scientific data to aid in the evaluation of crystalline trypsin.

Warfarin Sodium.—$C_{19}H_{15}NaO_4$.—M.W. 330.32.—3-(α-Acetomylbenzyl)-4-hydroxycoumarin sodium.—The structural formula of warfarin sodium may be represented as follows:



Actions and Uses.—Warfarin sodium is a coumarin derivative that produces the blood anticoagulant activity characteristic of similarly acting compounds. It reduces the prothrombin concentration and prolongs the clotting time of the blood, presumably by an action on the liver that reduces prothrombin production. Thus it is useful for the prevention and treatment of diseases resulting from or complicated by intravascular clotting. (See the monographs on bishydroxycoumarin and heparin sodium in New and Nonofficial Remedies.)

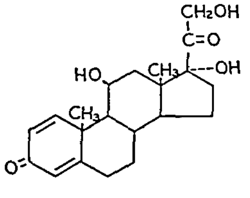
Like other systemic anticoagulants, warfarin sodium does not affect thrombi or emboli already formed, but it retards further intravascular clotting. It may prevent propagation of such clots and permit their dissolution by blood enzymes. Unlike other similar compounds, warfarin sodium can be administered intravenously as well as orally. Intravenously, it acts less rapidly than heparin sodium but more rapidly than older, orally administered coumarin derivatives. It is readily absorbed into the blood after oral administration and also may be employed by this route as an adjunct to initial parenteral therapy. Warfarin sodium is effective in small doses by either parenteral or oral administration, and its duration of action is longer or at least as long as previously available coumarin derivatives. As with other anticoagulant drugs, overdosage may result in hemorrhagic complications; hence frequent determinations of blood prothrombin determinations should be carried out. Salicylates are potentially capable of enhancing the hemorrhagic effect of the drug. In the event of overdosage, therapy should be temporarily discontinued and vitamin K_1 should be employed along with blood transfusion to combat hemorrhage. The drug should not be administered in the presence of visceral bleeding, a preexisting hemorrhagic diathesis, subacute bacterial endocarditis, or impaired hepatic or renal function. Also, it should not be administered to patients recovering from operations on the brain or spinal cord or who are undergoing continuous tube drainage of the stomach, intestine, or urinary tract in the presence of ulceration. It may be used with caution in patients similarly undergoing continuous tube drainage in the absence of ulceration.

Dosage.—Warfarin sodium is administered intravenously or orally. The blood prothrombin time should be determined prior to and after the initial dose, and thereafter at intervals of 24 to 48 hours during the first 2 weeks and not more than 3 days apart for the second 2 weeks. For longer therapy, prothrombin determinations may be made at weekly intervals.

Intravenously, an initial single dose, calculated on the basis of 1 mg. per kilogram of body weight (but not less than 60 mg. nor more than 75 mg.), may be expected to prolong a normal prothrombin time in the therapeutic range of 25 to 45 seconds (whole plasma) within 12 to 18 hours for a period of 5 to 6 days. Subsequent intravenous doses should be approximately two-thirds of the original dose and should be administered after the prothrombin time begins to recede from its peak. Alternatively the second and succeeding doses may be given orally, either 12.5 mg. daily or 25 to 50 mg. every 2 to 4 days. Oral dosage in the latter range usually produces a hypoprothrombinemia lasting about 3 days and should be spaced accordingly. If the oral route is employed initially, a single dose of 75 mg. to 100 mg. produces a therapeutic hypoprothrombinemia lasting 2 to 5 days. Subsequent oral doses should follow the same schedule as when following initial intravenous administration. Patients who are vomiting or have undergone extensive surgery may be more susceptible to the drug, and in such cases the initial intravenous or oral dose should be reduced to 25 or 50 mg. (one-third to two-thirds of the usual initial dose). Because of a latent period of about 12 to 18 hours between administration of the initial intravenous or oral dose and its prolonging effect on blood prothrombin time, it may be advisable to initiate anticoagulant therapy with intravenous heparin sodium in emergency situations. In such cases an appropriate initial dose of heparin sodium may be administered intravenously at the same time or in the same syringe with the proper initial dose of warfarin sodium. The shorter-acting heparin sodium produces a prompt therapeutic effect lasting about 4 hours and can be separately injected again once or twice to cover the latent period before the effect of warfarin sodium is manifest.

Endo Products, Inc., cooperated by furnishing scientific data to aid in the evaluation of warfarin sodium.

Prednisolone. — $C_{21}H_{28}O_5$. — M.W. 360.46. — $\Delta^{1,4}$-pregnadiene-3,20-dione-11,17α,21-triol.—The structural formula of prednisolone may be represented as follows:

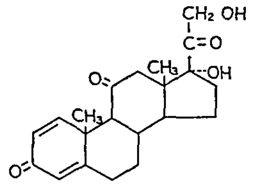


Actions and Uses.—Prednisolone, a dehydrogenated analogue of hydrocortisone, exhibits the same systemic actions and has about the same potency as prednisone. (See monograph on prednisone.) It is less irritant to tissues because of its greater solubility and therefore may be suitable for intra-articular injection.

Dosage.—Prednisolone is administered orally in the same dosage as prednisone. (See monograph on prednisone.) The concentration and dosage for intra-articular injection has not been determined.

Schering Corporation cooperated by furnishing scientific data to aid in the evaluation of prednisolone.

Prednisone. — $C_{21}H_{26}O_5$.—M.W. 342.44.—$\Delta^{1,4}$-pregnadiene-17α,21-diol-3,11,20-trione.—The structural formula of prednisone may be represented as follows:



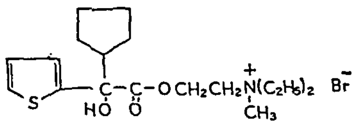
Actions and Uses.—Prednisone, a dehydrogenated analogue of cortisone, shares the actions and uses of the other glucocorticoids employed clinically. It should prove valuable as substitution therapy in frank adrenal insufficiency such as occurs in adrenal cortical hypofunction (Addison's disease) or panhypopituitarism or after adrenalectomy. Prednisone has been shown to control the symptoms of the collagen diseases, including rheumatoid arthritis, disseminated lupus erythematosus, periarteritis nodosa, dermatomyositis, and scleroderma. As with cortisone and hydrocortisone, prednisone generally is effective in the collagen diseases only while therapy is continued. It also has been demonstrated that it has value in the symptomatic management of allergic states, especially intractable bronchial asthma. It is anticipated that prednisone will prove valuable in the symptomatic control of acute rheumatic fever, pemphigus, and the neoplasias of the lymphatic system, as well as other diseases responsive to cortisone and hydrocortisone.

It should be borne in mind that prednisone is an extremely potent compound and that therapeutic dosages will depress the function of the adrenal cortex. It should be used with the same precautions as observed with cortisone and hydrocortisone. Despite the lessened likelihood of sodium retention and potassium excretion, measurement of fluid intake and output and daily weighing of the patient should be performed to give early indication of fluid retention, especially if the diet is without sodium restriction and potassium supplementation. Potassium depletion should always be considered and guarded against. The drug should be withdrawn gradually on cessation of therapy to afford the adrenal an opportunity to recover from the partial atrophy occurring during extended treatment. As with the other glucocorticoids, surgical or medical emergencies in the immediate post-treatment period and before full adrenal recovery may require reinstitution of treatment with prednisone or another glucocorticoid to avoid possible acute adrenal deficiency.

Dosage.—The dose of prednisone, as with the other glucocorticoids, varies with the severity of the disease under treatment and with the individual patient. The drug is administered orally. To control severe conditions a suppressive dosage of 30 to 50 mg. of prednisone daily, divided into four doses, may be required. The suppressive doses may be continued for a period of 2 days to a week then decreased by decrements of 5 or 10 mg. every 4 or 5 days until signs and symptoms recur. The maintenance dose for each patient should be established at the lowest possible daily dosage to maintain comfort and to eliminate signs of the disease being treated. For milder conditions, 5 to 25 mg. daily have proved effective. If it is thought desirable to transfer a patient from cortisone or hydrocortisone therapy to prednisone, an initial dose of 25 to 50% of the steroid originally used should be employed and the dose should be decreased or increased according to the response of the patient.

Schering Corporation cooperated by furnishing scientific data to aid in the evaluation of prednisone.

Penthienate Bromide.—$C_{18}H_{30}BrNO_3S$.—M.W. 420.43.—2-diethylaminoethyl α-cyclopentyl-2-thiopheneglycolate methobromide.—2-diethylaminoethyl 2-cyclopentyl-2-(2-thienyl) hydroxyacetate methobromide.—The structural formula of penthienate bromide may be represented as follows:



Actions and Uses.—Penthienate bromide is an anticholinergic agent that inhibits gastric secretion and motility of the gastrointestinal tract. Its antisecretory effect on both volume and acidity of gastric juice makes the drug suitable for use as an adjunct to dietary measures, antacids, and other medication in the management of peptic ulcer (gastric and duodenal). Penthienate bromide also has been employed in hyperhidrosis, but it appears to be less effective than in gastric hypersecretion. The spasmolytic effect of the drug is more pronounced on the upper than on the lower portion of the gastrointestinal tract; thus penthienate bromide can be expected to inhibit pylorospasm more effectively than spasm of the colon. Its usefulness in gastritis not associated with gastric hyperacidity has not been established. Clinically the drug appears to be helpful in about two-thirds of patients with spastic colon (irritable bowel, mucous colitis, functional diarrhea), but more adequate physiological studies in human beings are needed to determine its ultimate usefulness for this purpose. It has not been found effective in chronic ulcerative colitis.

Penthienate bromide produces atropine-like side-effects in common with other anticholinergic agents that block parasympathetic nerve impulses. At its therapeutically effective dosage level, mouth dryness is common. This rarely is severe enough to necessitate withdrawal and may tend to disappear with continued administration of the drug. Some patients may experience headache, blurring of vision (mydriasis), difficult urination, and constipation or, more rarely, effects on the cardiovascular system such as chest pain, tachycardia, and vertigo. Serious toxic effects have not been encountered. The drug is contraindicated or should be used with caution in glaucoma, urinary bladder neck obstruction, prostatic hypertrophy, cardiac decompensation, coronary insufficiency, achalasia, cardiospasm, and duodenal or pyloric obstruction (until relieved).

Dosage.—Penthienate bromide is administered orally. The usually effective dose for adults ranges from 5 to 10 mg. four times daily. The dose should be individualized, usually at a level sufficient to produce slight mouth dryness. Doses below this level are likely to be ineffective. A dose of 10 mg. four times daily may be required initially in some patients to bring symptoms under control; a total daily dosage of 40 mg. should not be exceeded, and such amounts should not be administered continuously for long periods. Lesser doses usually are adequate for maintenance therapy. In peptic ulcer the drug should supplement other medical management.

Winthrop Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of penthienate bromide.

COMMITTEE ON COSMETICS

Report to the Committee

The following report has been prepared at the request of the Committee.

VERONICA LUCEY CONLEY, *Secretary.*

TREATMENT OF ACNE SCARS BY DERMABRASION

ROTARY BRUSH METHOD

Herbert Rattner, M.D., Chicago
and
Charles R. Rein, M.D., New York

A subject that has aroused a great deal of discussion in dermatological circles concerns the dermabrasion treatment for acne scars. In 1952 Kurtin[1] presented this method of refrigeration-abrasion, which he termed skin planing. Seldom has a new treatment method engendered so much interest. Some resolutely refused to endorse the therapy, and others were enthusiastic about it to an unwarranted degree. The method has since been tried and accepted by many dermatologists throughout the country. Modifications have been introduced and experiences recorded, and now a large enough number of cases have been observed for a long enough period so that a status report of the method seems timely.

The information that seems to interest physicians most involves not only the technical details but such aspects as the types of scars that respond best to the therapy, length and character of convalescence, discomfort involved, complications, frequency of treatments, and probable results.

Professor and Chairman, Department of Dermatology, Northwestern University Medical School, and Editor, *A. M. A. Archives of Dermatology* (Dr. Rattner) and Associate Professor of Clinical Dermatology and Syphilology, New York University Post-Graduate Medical School (Dr. Rein).

[1] Kurtin, A.: Corrective Surgical Planing of Skin, A. M. A. Arch. Dermat. & Syph. 68:389 (Oct.) 1953.

HISTORICAL

The so-called dermabrasion or planing operation is new in technique only, not in principle. In the past, numerous measures were devised to eradicate acne scars, but all of them were found wanting. The various methods consisted of scarification, electrodesiccation, surgical excision, surgical shaving, chemical caustics, cryotherapy (usually by means of a slush made of carbon dioxide or dry ice and acetone), and mechanical abrasion with sandpaper. The last named has been the most widely publicized method in recent years.

The planing method, while employing the same basic principle of abrasion as the sandpaper treatment, has additional innovations that improve immeasurably both the technique and the clinical results. It employs a refrigeration-type anesthesia that both facilitates abrasion and controls bleeding. The narrow steel brushes and specially designed spray localizers permit the treatment of small pits and areas, such as the nasolabial fold, that are otherwise not readily accessible. The method constitutes an improvement over the sandpaper technique also in that it eliminates the potential risk of the later development of silica granuloma. Then too, this operation is performed in the office; general anesthesia is not required.

APPARATUS AND TECHNIQUE

The abrading device consists of a motor mounted on a stand to which a flexible shaft is attached. At the end of the shaft is a handpiece with provisions for inserting and tightening the wire brush mandrel. The speed of rotation of the brush is controlled by a foot-operated rheostat.

The operation should be performed in a well-ventilated room and should begin with the application of chilled packs, containing a 5% solution of propylene glycol, on a clean skin (freshly shaved, cosmetics removed) for about 20 minutes. The scalp is covered with an operating-room cap or bathing cap, as hairs entangled in the brush may snap the spring in the sensitive handpiece. Cotton is plugged into the ear canals and into the nostril on the side to be planed. The lips are greased with petrolatum, the eyelids covered. The base of each pit is dotted with gentian violet solution to serve as a guide for planing depth. A course spray of ethyl chloride is then directed to an area with scars; simultaneously a current of air from a blower or fan is directed to the area to hasten both the evaporation of the ethyl chloride and the freezing of the skin. The preferred blower is mounted on a stand and has a flexible elongated nozzle, so that the air-flow direction can be "pinpointed" on the area to be treated. The area freezes white almost immediately, and the skin becomes anesthetized and rigid. To render the surface flat, the operator then applies slight tension to the skin with a wooden tongue blade held with his free hand. The scars are then abraded by the motor-driven wire brush, which is manipulated in short strokes with a firm hand in a direction vertical to the rotating direction of the brush in order to avoid grooving. The procedure is repeated, progressing from area to area, until all the scars have been planed (until all the gentian violet has been brushed away).

Such matters as to how much pressure to apply, the width of the brush, the angle of the blades, and the number of "abrasions" are determined entirely by experience. Blood-oozing from the frozen sites is minimal and dries quickly. A sterile dry dressing is applied until the oozing stops, and the entire face then is dressed with Telfa dressings (fabric plus plastic) applied rather firmly. Some operators apply dressings of sterile petrolatum, others employ antibiotics in dressings and/or by mouth. We instruct patients to remove the dressings, which become blood-tinged, after 24 hours; others instruct the patients to remove them after a few hours or not for three or four days. No further dressings are required. Most patients find the procedure to be painless, although a few, after the planing and before the bandages are applied, complain of a burning sensation much like that of a skinned knee. The younger patients "take it in stride"; the older ones speak of an "emotional experience," particularly when the bandages are removed, because the sight is frightening to some. The skin is red and markedly swollen—enough to shut the eyes in some cases—and covered with dried blood and scabs as though the face had been burned severely. The scabs drop off in 7 to 10 days. After the second week, patients usually return to their normal activities, although a fastidious person may choose to remain home for another week because of the redness. The edges of the scars begin to recede by the fourth week, and the improvement continues steadily for several months, so that patients usually look their best about six months after the operation.

The results of treatment depend a great deal upon the skill of the operator and the depth and shape of the scars. Flat superficial scars respond better than do deep-pitted so-called ice-pick type of scars or the wide, flat confluent scars that produce an undulating appearance of the skin. Unfortunately the latter types occur all too often and produce the most severe cosmetic defect, so that persons who need help most get it least. The results are seldom dramatic, although the majority of patients are pleased with the cosmetic improvement. In many cases the improvement in the patient's well-being is so striking that it leads us to believe that we have taken too lightly the importance to the patient of acne scars. The treatment may be repeated several times at intervals of four to six months if necessary. The age of the patient is not important, although results seem to be better in younger persons. The presence of a few acne lesions should not interfere with the treatment.

The procedure may also be used for the treatment of scars from herpes zoster, chickenpox, or smallpox. Scars from chickenpox, because of their flattened shape, respond exceptionally well. It has been suggested also for the treatment of tattoo marks, keratoses, nevi, and other benign growths, but there are better methods of treatment for such lesions.

COMPLICATIONS

The complications that are occasionally observed are relatively unimportant. On rare occasions impetigo, which is readily controlled by treatment with antibiotics, develops in the second week. More often, milia may appear some weeks later. These disappear in time; emptying them does hasten their involution. In exceedingly rare instances, postoperative redness has persisted for several months instead of for the usual three or four weeks. This may result from excessive refrigeration, overexposure or premature exposure to sunlight after the operation, or overly vigorous cleansing. In rare cases hyperpigmentation at the edges of abraded areas, or as a mottling of the entire abraded area, develops and persists for a while. The appearance of eczematous patches has been recorded, and the much dreaded complication of hypertrophic scar development has also been recorded, albeit rarely. We have encountered five cases in which small hypertrophic scars developed, but in each case the scars were readily flattened by treatment. We have heard of larger "keloids" developing but have seen no authentic reports of such cases.

MODIFICATIONS

In recent months we have replaced ethyl chloride with the freezing agent Freon 114 (Frigiderm, dichlorotetrafluoroethane) because, unlike ethyl chloride, it is nontoxic, has no general anesthetic properties, and is nonflammable and nonexplosive—in short, as Wilson has said, "It does the work of ethyl chloride without the dangers of ethyl chloride." [2] An additional advantage is that ethyl chloride disperses the gentian violet and thus may mask the field of operation, whereas Freon 114 does not. Then, too, with Freon the sometimes nerve-racking noisy blower becomes an unnecessary piece of equipment.

Freon is supplied in spray-type containers. At the annual meeting of the A. M. A. on June 6, 1955, Wilson demonstrated a "jet spray," not yet available, which is attached to the planing handpiece and receives the refrigerant through a tube from a container mounted on the motor standard. It is equipped with finger-button controls, which make it a one-man, timesaving device. A "pneumatic freezing unit" has been designed by LeVan [3] to deliver the ethyl chloride spray under a stream of compressed air, the procedure being controlled by a foot pedal. Eller [4] has employed a faster motor and instead of a steel wire brush uses an emory stone wheel first suggested by Schreuss.

Some physicians routinely use analgesics and antibiotics preoperatively and postoperatively. We employ these measures only in selected cases. Some operators treat only a small area at a time, in order not to confine the patient, but the results, in our experience, are more satisfactory when the entire face is treated at one time.

COMMENT

The tremendous interest in the dermabrasion technique shown by both physicians and patients reveals the amazing importance and often-exaggerated importance of a scarred skin to a person's emotional well-being. In the beginning, and understandably, practically every patient who sought treatment for scars was treated. The limitations of the treatment were not fully realized, and inevitably the technique was both abused and misused, and most unfortunate were the unduly glowing accounts of the treatment that appeared in some newspapers and popular magazines.

The operation to flatten scars is a cosmetic procedure, not a lifesaving one; therefore, careful selection of patients is as ethical a plan as it is wise. To treat a patient who expects a perfect result is to invite unpleasant consequences, because the results of treatment are usually good rather than dramatic. It is unwise also to treat unstable persons who attribute all of their inadequacies to the scars, although on two occasions, at the request of psychiatrists, we have treated patients with scars from neurotic excoriations with happy results. As has been mentioned, though they can be helped, the results are not what one hopes for when the scars are deep, narrow, and sharp-edged, the so-called "ice-pick" type scars, or when they are wide and confluent, causing an undulating appearance. Then, too, this type of skin usually is riddled, especially in the central oval portion of the face, with patulous pores, and wide pores cannot be improved by treatment. Results from treatment are more satisfactory on the face than on the chest, shoulders, back, or neck. Scars of recent origin apparently respond better to the treatment than do old scars. We prefer, for the time being, not to treat youngsters whose acne is still in the active stage. For one or another of these reasons we now reject two to three out of five persons who apply for the treatment.

Before treatment it is important to discuss the problem thoroughly with the patient in the presence of a relative and to stress, when necessary, that the results may fall somewhat short of the patient's expectations. The whole experience will be more pleasant if the patient is sufficiently intelligent and emotionally conditioned to be content with improvement, even after two or three operations, rather than complete cure—and, incidentally, it is tempting fate to try to foretell the amount, percentage-wise, of improvement to be expected from treatment. It is better for a patient not to decide on an operation during the first interview, for it is an emotional experience and should be considered calmly and carefully.

CONCLUSIONS

A realistic consideration of the dermabrasion technique indicates it to be the best treatment yet devised for the improvement of acne scars. Although the treatment does not produce "miraculous new skin," superficial flat scars sometimes respond with striking results; other types are benefited in various degrees. In general, the majority of patients are satisfied with the results; occasionally, the results are more pleasing to the patients than to the physician. Unfortunately, not every patient with acne scars can be helped sufficiently, but, if particular care is exercised in the selection of the patients, a great deal of good can be done for a great many persons, cosmetically as well as emotionally.

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[2] Wilson, J. W.; Luikart, R., II, and Ayers, S., III: Dichlorotetrafluoroethane for Surgical Skin Planing: A Safe Anesthetic-Refrigerant, A. M. A. Arch. Dermat. 71: 523 (April) 1955.

[3] LeVan, P.: Mechanical Method of Freezing the Skin for Surgical Planing, A. M. A. Arch. Dermat. & Syph. 69: 739 (June) 1954.

[4] Eller, J.: Types of Rotary Skin Abrasives for the Removal of Acne Scars, Tattoo Marks and Other Skin Defects, to be published.

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The procedure may also be used for the treatment of scars from herpes zoster, chickenpox, or smallpox. Scars from chickenpox, because of their flattened shape, respond exceptionally well. It has been suggested also for the treatment of tattoo marks, keratoses, nevi, and other benign growths, but there are better methods of treatment for such lesions.

COMPLICATIONS

The complications that are occasionally observed are relatively unimportant. On rare occasions impetigo, which is readily controlled by treatment with antibiotics, develops in the second week. More often, milia may appear some weeks later. These disappear in time; emptying them does hasten their involution. In exceedingly rare instances, postoperative redness has persisted for several months instead of for the usual three or four weeks. This may result from excessive refrigeration, overexposure or premature exposure to sunlight after the operation, or overly vigorous cleansing. In rare cases hyperpigmentation at the edges of abraded areas, or as a mottling of the entire abraded area, develops and persists for a while. The appearance of eczematous patches has been recorded, and the much dreaded complication of hypertrophic scar development has also been recorded, albeit rarely. We have encountered five cases in which small hypertrophic scars developed, but in each case the scars were readily flattened by treatment. We have heard of larger "keloids" developing but have seen no authentic reports of such cases.

MODIFICATIONS

In recent months we have replaced ethyl chloride with the freezing agent Freon 114 (Frigiderm, dichlorotetrafluoroethane) because, unlike ethyl chloride, it is nontoxic, has no general anesthetic properties, and is nonflammable and nonexplosive—in short, as Wilson has said, "It does the work of ethyl chloride without the dangers of ethyl chloride." [2] An additional advantage is that ethyl chloride disperses the gentian violet and thus may mask the field of operation, whereas Freon 114 does not. Then, too, with Freon the sometimes nerve-racking noisy blower becomes an unnecessary piece of equipment.

Freon is supplied in spray-type containers. At the annual meeting of the A. M. A. on June 6, 1955, Wilson demonstrated a "jet spray," not yet available, which is attached to the planing handpiece and receives the refrigerant through a tube from a container mounted on the motor standard. It is equipped with finger-button controls, which make it a one-man, timesaving device. A "pneumatic freezing unit" has been designed by LeVan [3] to deliver the ethyl chloride spray under a stream of compressed air, the procedure being controlled by a foot pedal. Eller [4] has employed a faster motor and instead of a steel wire brush uses an emory stone wheel first suggested by Schreuss.

Some physicians routinely use analgesics and antibiotics preoperatively and postoperatively. We employ these measures only in selected cases. Some operators treat only a small area at a time, in order not to confine the patient, but the results, in our experience, are more satisfactory when the entire face is treated at one time.

COMMENT

The tremendous interest in the dermabrasion technique shown by both physicians and patients reveals the amazing importance and often-exaggerated importance of a scarred skin to a person's emotional well-being. In the beginning, and understandably, practically every patient who sought treatment for scars was treated. The limitations of the treatment were not fully realized, and inevitably the technique was both abused and misused, and most unfortunate were the unduly glowing accounts of the treatment that appeared in some newspapers and popular magazines.

The operation to flatten scars is a cosmetic procedure, not a lifesaving one; therefore, careful selection of patients is as ethical a plan as it is wise. To treat a patient who expects a perfect result is to invite unpleasant consequences, because the results of treatment are usually good rather than dramatic. It is unwise also to treat unstable persons who attribute all of their inadequacies to the scars, although on two occasions, at the request of psychiatrists, we have treated patients with scars from neurotic excoriations with happy results. As has been mentioned, though they can be helped, the results are not what one hopes for when the scars are deep, narrow, and sharp-edged, the so-called "ice-pick" type scars, or when they are wide and confluent, causing an undulating appearance. Then, too, this type of skin usually is riddled, especially in the central oval portion of the face, with patulous pores, and wide pores cannot be improved by treatment. Results from treatment are more satisfactory on the face than on the chest, shoulders, back, or neck. Scars of recent origin apparently respond better to the treatment than do old scars. We prefer, for the time being, not to treat youngsters whose acne is still in the active stage. For one or another of these reasons we now reject two to three out of five persons who apply for the treatment.

Before treatment it is important to discuss the problem thoroughly with the patient in the presence of a relative and to stress, when necessary, that the results may fall somewhat short of the patient's expectations. The whole experience will be more pleasant if the patient is sufficiently intelligent and emotionally conditioned to be content with improvement, even after two or three operations, rather than complete cure—and, incidentally, it is tempting fate to try to foretell the amount, percentage-wise, of improvement to be expected from treatment. It is better for a patient not to decide on an operation during the first interview, for it is an emotional experience and should be considered calmly and carefully.

CONCLUSIONS

A realistic consideration of the dermabrasion technique indicates it to be the best treatment yet devised for the improvement of acne scars. Although the treatment does not produce "miraculous new skin," superficial flat scars sometimes respond with striking results; other types are benefited in various degrees. In general, the majority of patients are satisfied with the results; occasionally, the results are more pleasing to the patients than to the physician. Unfortunately, not every patient with acne scars can be helped sufficiently, but, if particular care is exercised in the selection of the patients, a great deal of good can be done for a great many persons, cosmetically as well as emotionally.

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[2] Wilson, J. W.; Luikart, R., II, and Ayers, S., III: Dichlorotetrafluoroethane for Surgical Skin Planing: A Safe Anesthetic-Refrigerant, A. M. A. Arch. Dermat. 71: 523 (April) 1955.

[3] LeVan, P.: Mechanical Method of Freezing the Skin for Surgical Planing, A. M. A. Arch. Dermat. & Syph. 69: 739 (June) 1954.

[4] Eller, J.: Types of Rotary Skin Abrasives for the Removal of Acne Scars, Tattoo Marks and Other Skin Defects, to be published.

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STATEMENT BY THE BOARD OF TRUSTEES

REASONS FOR A. M. A. STAND ON COMPULSORY SOCIAL SECURITY COVERAGE OF PHYSICIANS

The current position of the American Medical Association relative to the inclusion of physicians under the Social Security Act, as set forth in the proceedings of various meetings of the House of Delegates, especially those since 1949, can be stated briefly as follows: Physicians are definitely opposed to compulsory coverage under Title II (Old-Age and Survivors Insurance) of the Social Security Act, but are not opposed to voluntary coverage thereunder. Reasons for this position are stated below, not necessarily in order of importance.

(1) Since Bismarck introduced socialized medicine in Germany three quarters of a century ago, the threat of socialized medicine through the extension of so-called social insurance has been ever-present in Western civilization. One nation after another has succumbed to the drive to extend the compulsory system of taxation called social insurance to finance a vast program of medical and hospital care for taxpayers and nontaxpayers. The history of developments in this field in foreign countries has alerted the medical profession to the usual consequence of a federal social security program.

(2) Most self-employed physicians do not retire; nor do they have any intention during their early professional lives of retiring at a fixed age. Currently about six physicians out of seven in the age group 65-75 are engaged in the active private practice of medicine. This is so because they can still utilize their accumulation of knowledge and skill to minister to sick people and because sick people still want these physicians to serve them. It has often been said that the only way a self-employed physician can actually retire is to move out of the community in which he has practiced. This observation was published in the printed hearings of the Senate Finance Committee on Social Security Amendments dated July 6, 1954. Thus, the provisions of the Old-Age and Survivors Insurance sections of the act simply do not fit the economic pattern of the self-employed physician.

(3) Since most self-employed physicians do not retire, the tax imposed upon them by coverage under O. A. S. I. would be unjust and unreasonable. They would be required to pay the tax long after most gainfully employed persons in other occupations have ceased to pay it and have started to draw their pensions. The amendments to the Social Security Act of 1954, which, in part, lowered the minimum age from 75 to 72 after which unlimited earnings do not prevent payment of pension benefits, reduced this inequality to some extent but did not eliminate it.

(4) The program is not really an "insurance" program as it is called. According to a published report of the Subcommittee on Social Security of the House Ways and Means Committee, 83rd Congress, retired beneficiaries under O. A. S. I., as of December, 1952, have received and/or would receive, on the average, pension benefits equal to approximately $24 for each fifty cents paid in during the working years of their lives. This ratio was again raised, to about $30 for each fifty cents paid in, by the 1954 amendments to the Social Security Act.

(5) Physicians as a group do not seek federal charity. The amount of the windfall benefit under Title II of the Social Security Act is not difficult to estimate. With a reduction since 1900 of almost 30% in the mortality rate between the ages of 65 and 75, the average remaining lifetime at age 65 is now about 153 months for a man and 180 months for a woman. By simple arithmetic it can be seen that paying a retired man, on the average, 153 monthly checks of $100 each, amounts to $15,300; paying a woman 180 monthly checks of $100 each, totals $18,000. These amounts do not cover survivorship benefits. If a man started to pay Social Security taxes on January 1, 1937, and paid taxes every month, he would not have paid more than $753 by the end of 1955. With the additional $753 paid by his employer the combined total is about one tenth of the $15,000 needed to finance the primary pension under O. A. S. I., let alone survivorship benefits for his widow and children. The differences between what he and his employer paid in and the cost of his pension to the government is, of course, the extent of his windfall benefits.

The deficit of $13,500 will be paid by younger taxpayers and future generations. The argument that we should accept these windfall benefits because almost every eligible citizen will has little appeal to physicians when their basic struggle is to preserve the free practice of medicine.

(6) In preference to compulsory coverage under the Social Security Act, the medical profession is giving its active support to the Jenkins-Keogh bills. These bills (H. R. 9-10, 84th Congress) would amend the Federal Internal Revenue Code so that self-employed physicians and others would have the same tax deferment advantages on the amounts set aside for retirement as are now enjoyed by the officers and employees of corporations, associations, and others.

The bills would provide prepaid pensions for all who are willing to save. We believe that our country is so diversified and that people earn their livings under so many different conditions that it is wise public policy for the Congress to provide a flexible pension system for the self-employed and to permit the pensionless employed to participate in the same voluntary program.

Contrariwise, we consider it incompatible with the free enterprise system for a group to be compulsorily covered under a governmental system of old age benefits when that group strongly opposes such coverage.

SECOND INJECTION OF POLIOMYELITIS VACCINE

When poliomyelitis vaccine was packaged for distribution some months ago, directions for use were included in the packages. These directions are now causing some confusion, since the original package inserts may not contain current recommendations but rather the schedule used in the 1954 field trial. Actually, the situation can be simply stated so far as most recent recommendations from Dr. Jonas Salk are concerned. They are in line with statements appearing in the August 6, 1955, issue of THE JOURNAL, pages 1244-1246. The second dose can be given as early as two weeks after the first, although the optimal time is felt, by Dr. Salk, to be four to six weeks. The third dose should be given approximately seven months or longer after the second dose. Southern physicians, of course, may have to adjust their schedules because the poliomyelitis season arrives earlier there than in the northern part of the country. So far as is known, there is no reason why the vaccine that is now available cannot be used, if such use is indicated, regardless of when it was prepared and regardless of the directions for use inside.

Physicians who have given two doses one week apart need not give additional inoculations but should give the third dose at seven months, or longer, after the second. Those who have given three doses, over a period of five weeks, as recommended in the package enclosures, should plan on a booster dose not less than seven months after the last dose in the primary series.

DERMABRASION

Dermabrasion or skin planing is an improved technique based on the centuries old principle that abrasion is a means of smoothing the scarred skin. It was first reported in medical circles several years ago. Since then experience has accumulated in the use of skin planing, particularly in the treatment of the pits and scars of acne. In spite of enthusiastic and premature publicity, which has distorted the true picture, no conclusive statements on the real significance of dermabrasion can yet be made. However, enough patients with acne scars have been treated and observed for a sufficiently long period to warrant a status report to the Committee on Cosmetics (see this issue, page 1299).

Enthusiasm for this method should not be discouraged, but its limitations must be clearly understood by the physician and the patient. Dermabrasion can improve skin appearance in many patients; it cannot help others. Often those who need it most obtain the least relief. The careful selection of patients has become a dependable guide to successful results. Consideration of many factors, including the degree and type of scarring and the psychological state of the patient, has led some dermatologists to reject as many as three out of five who seek treatment. In dermabrasion as in other procedures where the improvement of appearance is the goal, success cannot be measured entirely by the physician's objective evaluation. Those who suffer from severe acne scarring and obtain the least skin improvement are often more enthusiastic about results than the less disfigured patient who experiences marked improvement by the physician's standards. Complete dissatisfaction can be expected in those persons who regard their scarred skin as solely responsible for their failures and discontentment in life. An improved skin will not have the magical effect of bringing them the social and economic success that they expect. On the contrary, it removes the excuse the patient has used for his failures. There is a real possibility in such patients that harm will be done by converting a minor psychological disturbance into a severe one.

These experiences in the treatment of acne scars will lead to a better understanding of the usefulness of dermabrasion in other types of scars and blemishes.

LOS ANGELES CONVENTION

The Los Angeles County Medical Association is sponsoring an assembly to be presented at the Biltmore Hotel and the Philharmonic Auditorium in Los Angeles, January 3, 4, and 5, 1956. The theme will be "Eighty-Five Years of Medical Progress." One half day will be devoted to each of six subjects: "Medicine's Role in the Atomic Age," "Modern Concepts in the Utilization of Blood and Blood Products," "Diagnosis and Treatment of Neoplastic Diseases," "Preventive Medicine," "Use and Misuse of Miracle Drugs," and "Management of the Geriatric Patient."

This program may not seem unusual except for the fact that it is tied in with an 85th anniversary; however, there is another feature that may lead to similar interesting developments elsewhere. The county association is sponsoring an event for the public, a Public Health Fair. It will be known as "A Cavalcade of Health and Medical Progress" and will run for 10 days beginning the morning of January 6. The 10 days will be devoted to medical lectures, motion pictures, commercial exhibits with a health story, and scientific exhibits prepared by medical schools, hospitals, clinics, research organizations, and other groups. The Los Angeles School Board has promised its cooperation and is making plans to allow the school children to attend these public meetings en masse. There also is being prepared a special health education program for the teachers, for which they will receive "institute credit." The superintendent of schools has appointed a committee of three physicians from his staff to work with the Los Angeles County Medical Association to develop a program suitable for both student and teacher.

Such a program should provide a stimulating avenue to similar ventures elsewhere. Health fairs or their counterparts have been held in other parts of the country and have been well received. Many will remember, for example, the show for the public following the A. M. A. meeting in Miami in 1954. It is doubtful, however, if local school authorities have ever previously participated to such a degree.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

I have received many letters from men all over the country complaining about the so-called doctor-draft extension for two years. The American Medical Association has been criticized for not protesting more forcibly against this discriminatory law. We did protest, but our protestations were of no avail when at the last minute the doctor-draft provisions were tacked onto the regular draft law. Although vigorous protests were made by us and by many of our friends in Congress, we were only able to accomplish two things: one, the age for induction of physicians was reduced from 51 to 46; and, two, any physician 35 years or older who was or is rejected for a commission in the Medical Corps solely for a physical disqualification became no longer liable under the act. I know for many reasons that there are no more patriotic citizens than the physicians. They object, and I think rightfully so, against this discriminatory legislation in times of so-called peace. War times are different, but we do have the doctor draft extended for two more years whether we like it or not, and the tragedy is that it may again be extended when the present two year period is over. In fact, a doctor draft could become a permanent thing come war or peace. This to me is an alarming situation that the Association must actively combat.

I have questioned many of my friends in the regular medical services, and I had one man high in the regular Medical Corps tell me without any reservations that there would be no Medical Corps in a few years the way things were going at the present time. A big part of the answer to this unusual and rather startling situation is just plain ordinary economics. This particular gentleman pointed out to me that the men who should be the backbone of the regular corps were retiring as soon as they could from the services to go into private practice just when their services were of the utmost value to the government because of their experience and training. The economic situation is so bad at present that it is impossible to recruit good young physicians for the permanent services. The career men in the Army are having a hard time financially, and it is difficult to blame a young man after he serves his time for not applying for a regular commission when he sees what is happening. This is particularly true when he sees the colonels retiring as fast as possible to accept much better paying positions in civilian life.

When I was a youngster it was a very desirable thing for a man to make a career in the armed forces medical services. Competitive examinations were the rule, and the men were very carefully selected. These are the men today who have so splendidly managed the terrific medical problems that have faced our armed forces during the past two decades. In the early days the salaries with the added benefits were somewhat comparable to the rewards of civilian practice. There were of course the added adventure, the educational facilities, and the social advantages. Today the salaries are not comparable with the income in the private practice of medicine nor in the medical positions in schools, clinics, and industry that are available to the older men who are eligible for retirement. The Department of Defense recently set up a task force to study the problem and make recommendations. The American Medical Association is, I know, perfectly willing to help in this task, but the sad state of affairs remains, and changes are neither quickly nor adequately accomplished.

We are the richest country in the world. We spend large sums of money abroad and we spend it at home on all sorts of welfare programs, but we treat all of our armed forces career people abominably. These men are the most important part of our national defense. Their salaries should be proportionate to the magnificent services they render. Their economic position should be such that they can live reasonably well and educate their children without undue worry. Taking into consideration their retirement pay and the benefits that are their right, their salaries should immediately be upped and they should receive somewhere near that which they could earn as civilians with equal duties and responsibilities. This in my book goes for all commissioned personnel in all departments of the armed forces but more particularly to the career medical men.

Unless this is done and done at once I can easily understand my Army friend's statement that in a few years there will be no career Medical Corps. What then? The men and women in the services have to be given preventative and curative medical care. Where will we get the doctors to do this? There is only one answer—the doctor draft. What can we do about it? We can assist the Department of Defense to restudy the whole problem and come up with recommendations. To whom? Congress. What else can we do? We can approve the recommendations when they are economically sound, and we can be of great service to our country by telling our representatives in Congress that this type of legislation is a must. It is one of two things; which do you want—an economically sound career Medical Corps or the doctor draft? Make no mistake—it is one or the other.

Elmer Hess, M.D.
Erie, Pa.

ORGANIZATION SECTION

STUDY CONFERENCE ON LEGISLATION

A study conference called by the American Medical Association to consider methods of informing its membership of certain aspects of pending legislation was held in Chicago, Oct. 22. More than 100 representatives of constituent state medical associations, A. M. A. officers, and members of the Board of Trustees participated in discussions and considered approaches for focusing the public's attention upon the A. M. A.'s viewpoint. H. R. 7225, known as the Social Security Amendments of 1955, includes provision for the payment of monthly cash benefits to the permanently and totally disabled at age 50. The bill, passed by the House of Representatives last summer, will come before the Senate Finance Committee for public hearings early in the next session of Congress.

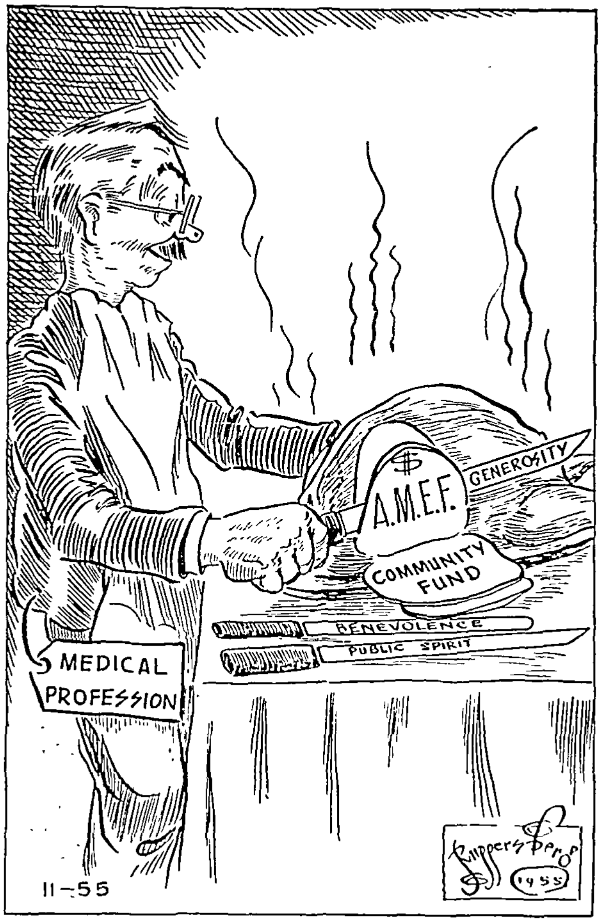
Comments of participants were solicited at the Chicago meeting, and A. M. A. officers and trustees are currently studying these opinions. Dr. George F. Lull, A. M. A. Secretary and General Manager, urged that all medical society representatives who attended the conference send further comments, suggestions, or criticisms to A. M. A. headquarters. He pointed out that the Association is studying the consensus of the state representatives who attended the conference and will proceed in a manner consistent with the views of the majority.

Giving the official address of welcome at the conference, Dr. Gunnar Gundersen, chairman of the Board of Trustees, said: "Our great aim should be to join with other groups and organizations, with the press and other communications media and with responsible leaders of both political parties to separate Social Security and politics. The A. M. A. believes that problems of Social Security should be solved on the basis of sound judgment, an objective analysis of facts, a humane attitude toward human suffering—and not on the basis of political expediency."

Dr. Elmer Hess, A. M. A. President, emphasized that the program to promote a better social security system must be considered a "long range effort," looking forward to 1958, 1960, even to 1962. He also stressed that study of social security legislation will require close cooperation and mutual activity at the national and local levels.

THE BOSTON MEETING

The School of Medicine Alumni Association of Boston University will hold an informal reunion at the Sherry-Biltmore Hotel in Boston Tuesday evening, Nov. 29. Dinner is scheduled for 7 p. m., with a social hour starting at 6 p. m. Tickets are $5 each, and wives and friends are invited.



"How're ya fixed for blades?" (Reprinted from the *Bulletin of the Columbus* (Ohio) *Academy of Medicine.*)

FEDERAL MEDICAL LEGISLATION

First Session, 84th Congress

Agency for the Handicapped

Congressman Diggs (D., Mich.), in H. R. 7207, and Congressman Staggers (D., W. Va.), in H. R. 7465, would establish a federal agency for the handicapped in the United States Department of Labor. To this would be transferred the Office of Vocational Rehabilitation from the Department of Health, Education, and Welfare, together with other governmental functions having to do with the handicapped. This measure, identical with numerous other measures previously reported, was referred to the Committee on Education and Labor.

Prepared by the Washington Office of the American Medical Association.

COUNCIL ON NATIONAL DEFENSE

RESULTS OF SURVEY OF PHYSICIANS SEPARATED FROM ACTIVE MILITARY SERVICE

The Council on National Defense, in July, 1952, initiated a continuing opinion survey of physicians released from active military service. Through an agreement with the military services, the Council is currently being furnished the names and addresses of these physicians. In turn, the Council requests these physicians to complete a questionnaire primarily designed to obtain pertinent information acquired during their tour of duty concerning the utilization of physicians and medical staffing conditions in the services. The results of these surveys are used as the basis of conferences with representatives of the Department of Defense and the armed forces, since the questionnaire also calls for comments and suggestions of ways to further improve the medical corps as well as ways and means whereby organized medicine can be of greater assistance to military physicians. This report covers the period from July 1, 1954, to Dec. 31, 1954, during which time a total of 2,373 questionnaires was distributed. Of these, 1,500 completed forms were returned to the Council, representing a 63% response.

AGE DISTRIBUTION BY BRANCH OF SERVICE

Of 1,500 physicians replying, 783 men were between the ages of 30 and 34 years; 465 between 25 and 29 years; 200 between 35 and 39 years; and 52 were over 40 years of age. The largest number of physicians (639) were in the Navy, and 512 and 348 were in the Army and Air Force respectively. The Army had the largest number in the 30-34 age group and the 40-and-over age group. Of those in the 25-29 age group, 225 were in the Navy and 134 in the Army.

PHYSICIANS' EVALUATION OF STAFFING CONDITIONS

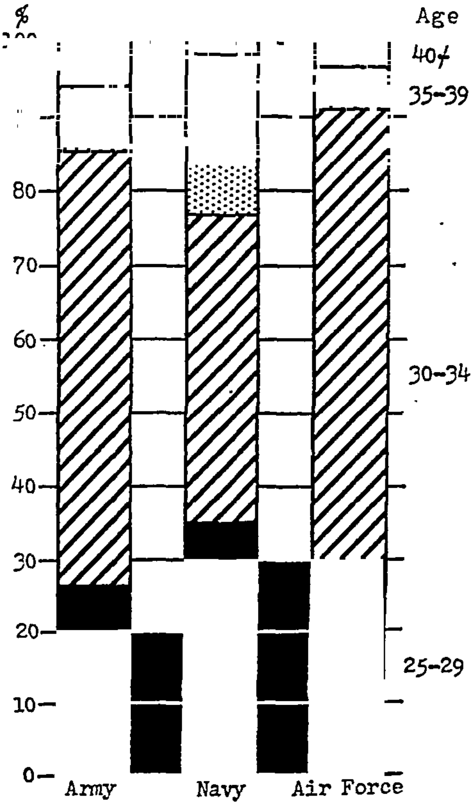
One of the questions was designed to obtain the opinion of physicians as to staffing conditions of nurses, enlisted medical personnel, physicians, dentists, and others at those units in which service was performed by the physician. The tabulation of this multiple-answer question indicated that in the Army replies of overstaffing totaled 389, understaffing 434, and adequate staffing 1,136. In the Navy, overstaffing was shown at 570, understaffing at 466, and adequate staffing at 1,334. The Air Force tabulation revealed 284 replies of overstaffing, 413 of understaffing, and 684 of adequate staffing. Table 1 reflects, in detail, the percentages relative to overstaffing, understaffing, and adequate staffing conditions.

DISTRIBUTION OF PHYSICIANS BY RANK AT TIME OF DISCHARGE

The majority of physicians in all three branches of the service, at time of separation, held the rank of first lieutenant or lieutenant junior grade. The survey indicates that 51.1% of those who reported were in the lowest rank, while 45.4% held the rank of captain or lieutenant senior grade. There were only 3.5% with higher ranks. By services, the Air Force had 10.1% at the first lieutenant rank and 88.2% at the captaincy level. The Navy had the highest percentage in the lowest rank, with 85.6% at the lieutenant junior grade level. Table 2 reflects, by branch of service, these percentages.

NUMBER OF YEARS SINCE GRADUATION

The survey indicated that about half of those replying (764, or 50.9%) were graduated from medical school between the years 1945 and 1949; the second largest group, 416, or 27.7%, were graduated in 1950 or later; and the third group in order, 298, or 19.8%, were graduated between 1940 and 1944. Only a small number, 15, or 1.0%, were graduated before 1940. Six failed to answer the questions (table 3).



Age distribution of physicians by branch of service.

YEARS OF INTERNSHIP AND RESIDENCY

By far, the majority of those responding, 1,331, or 88.8%, had one year of internship training, while 350, or 23.3%, had three years of residency; 260, or 17.3%, had one year of residency; 244, or 16.3%, had two years of residency; and 334, or 22.3%, had no residency training. Table 4 shows this tabulation in more detail.

OCCUPATION AT TIME OF ENTERING SERVICE

A majority of the physicians who served in the Army, Navy, and Air Force were engaged in residency training at the time of entrance into active military duty. The largest group in the naval service was engaged in residency training, with specialty practice second. In the Army group, specialty practice was second, while, in the Air Force, internship and general practice tied for second, with specialty practice a very close third (table 5).

NUMBER OF PHYSICIANS HOLDING BOARD CERTIFICATES BY FIELD OF SPECIALIZATION

Table 6 shows the detailed numbers, by specialty and by branch of service, of physicians holding board certificates. Of the 270 persons responding to this question, 87 holding board certificates were in the Army, 139 were in the Navy, and 44 were in the Air Force. The specialties covered over 18 different fields, of which the largest was surgery, the second largest was pediatrics, and the third largest internal medicine. By branch of service, a total of 17.0% of those responding in the Army, 21.8% of those in the Navy, and 12.6% of those in the Air Force had certificates. For the three services, 18.0% of those responding had board certificates.

RESERVE STATUS

Most of the physicians who replied indicated that they still had their reserve commission. The percentage who retained their commission was higher in the Navy, with the Army second and Air Force last. These percentages are reflected in table 7.

TABLE 4.—*Percentage Distribution of Total Physicians by Years of Internship and Residency*

Yr.	Internship, %	Residency, %
None	0.3	22.3
1	88.8	17.3
2	10.5	16.3
3	0.1	23.3
4	0.0	10.6
Other	0.3	10.2
Total	100.0	100.0

TABLE 5.—*Percentage Distribution of Physicians According to Type of Practice at Time of Entering Military Service*

	Army, %	Navy, %	Air Force, %
Internship	12.3	11.7	15.5
Residency	32.8	31.6	40.8
Specialty practice	19.3	28.3	15.2
General practice	15.8	19.9	15.5
Industrial practice	0.8	0.0	0.6
Other	19.0	8.5	12.1
No response	0.0	0.0	0.3
Total	100.0	100.0	100.0

TABLE 1.—*Medical Staffing Conditions in the Armed Forces*

	Overstaffed, %			Understaffed, %			Adequate, %		
	Army	Navy	Air Force	Army	Navy	Air Force	Army	Navy	Air Force
Nurses	6.2	11.7	13.4	38.0	27.5	31.7	23.1	27.0	23.0
Enlisted medical personnel	22.4	26.0	22.5	22.6	19.9	21.3	26.0	26.8	26.3
Physicians	38.0	45.8	27.1	18.4	18.7	25.4	22.5	19.3	21.6
Dentists	24.2	10.9	27.5	14.5	28.1	14.6	24.6	24.1	25.1
Others	9.2	5.6	9.5	6.5	5.8	7.0	3.8	2.8	4.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

GOVERNMENT MEDICAL EDUCATION RECEIVED

Of the 1,499 physicians in the Army, Navy, and Air Force who completed the questionnaire, a total of 1,033 stated that they had received assistance in their medical education from the government. There were 466 who said they had received no government assistance. The largest single group receiving government assistance was under the Navy V-12 Program, while the next largest number received assistance under the Army Specialized Training Program. The GI Program accounted for the third largest group, while several listed a combination of various programs. Table 8 shows percentages in detail.

TABLE 2.—*Distribution of Physicians by Rank at Time of Discharge*

	Army		Navy		Air Force	
	No.	%	No.	%	No.	%
1st lieut.—lieut. j.g.	184	35.9	547	85.6	35	10.1
Capt.—lieut. s.g.	312	60.9	61	9.5	307	88.2
Major—lieut. commander	10	2.0	26	4.1	4	1.1
Lieut. col.—commander	4	0.8	2	0.3	0	0.0
Col.—capt.	2	0.4	3	0.5	0	0.0
No answer	0	0.0	0	0.0	2	0.6
Total	512	100.0	639	100.0	318	100.0

TABLE 3.—*Number and Percentage Distribution of Physicians Graduated from Medical Schools in Selected Intervals*

Graduation, Yr.	No.	%
Before 1940	15	1.0
1940-1944	298	19.8
1945-1949	764	50.9
1950 and over	416	27.7
Unknown	6	0.4
Total	1,500	100.0

TRAINING RECEIVED WHILE IN SERVICE

Of the 1,500 who returned a completed questionnaire, approximately one-third did not respond to the question concerning the additional training or experience received while in the military service. Of those responding, 412 who served in the Army, 276 in the Navy, and 251 in the Air Force indicated they received additional training or experience in service schools. The Medical Field Service School accounted for the largest number, while the School of Aviation Medicine and the Amphibious Forces Training School were next in order of size. Table 9 indicates the number and percentage distribution of physicians by type of training received and by branch of service.

PHYSICIANS' EVALUATION OF MEDICAL MILITARY TRAINING

The great majority of the physicians filling out the questionnaire felt that all important features of medical military training had been satisfactorily covered. A small percentage indicated the training was unsatisfactory but gave no specific reasons. Others stated reasons why they considered their tour of service unsatisfactory. It should be pointed out that this was a multiple-answer question. According to services, the response from the Army was 469, from the Navy 513, and from the Air Force 317. Table 10 indicates percentages by branch of service.

PHYSICIANS' EVALUATION OF ASSIGNMENT

A large majority of the physicians indicated that they were properly assigned; however, a less decisive majority in the Army and Air Force responded favorably to the question as to whether they were properly rotated.

TABLE 6.—*Number of Physicians Holding Board Certificates by Field of Specialization*

	Army	Navy	Air Force
Pediatrics	14	16	11
Psychiatry and neurology	6	16	4
Orthopedic surgery	2	4	2
Dermatology and syphilology	2	3	1
Radiology	5	6	4
Urology	0	4	0
Obstetrics and gynecology	2	9	2
Internal medicine	13	23	4
Pathology	6	2	1
Ophthalmology	5	11	3
Otolaryngology	4	3	1
Surgery	16	32	8
Anesthesiology	2	4	1
Physical medicine and rehabilitation	0	1	0
Plastic surgery	1	1	0
Neurological surgery	0	0	1
Preventive medicine and public health	1	1	0
Thoracic surgery	1	1	0
Certificate not specified	7	2	1
Total	87	139	44

TABLE 7.—*Percentage Distribution of Physicians According to Reserve Status*

	Army, %	Navy, %	Air Force, %
Retained commission	47.7	78.4	36.8
Dropped commission	51.9	20.2	62.6
No response	0.4	1.4	0.6
Total	100.0	100.0	100.0

TABLE 8.—*Percentage Distribution of Physicians by Type of Governmental Medical Education Received*

	Army, %	Navy, %	Air Force, %
Army Specialized Training Program	23.6	10.0	20.7
Navy V-12	12.5	62.6	21.9
GI Bill	11.7	5.5	8.9
Navy V-12 and GI	10.4	1.0	10.9
Other	0.8	0.6	1.4
	59.0	79.7	63.8
No assistance	41.0	20.3	36.2
Total	100.0	100.0	100 0

A more decisive majority in the Navy, however, responded favorably to the question as to whether they were properly rotated. Tables 11 and 12 show these percentages by branch of service.

TYPES OF PATIENTS TREATED

One of the questions was designed to determine the percentage of time devoted by physicians to military personnel, dependents of military personnel, and administrative duties, both at domestic and overseas stations. Many of the respondents neglected to answer the question, and still others answered it only in part. Tables 13 and 14 reveal these percentages in detail.

TYPES OF NONMILITARY MEDICAL CARE PROVIDED

The type of medical care most frequently performed by medical officers for nonmilitary persons was outpatient care. For the Army, "other specialty services" was second in order of frequency, with surgery the third in order. For the Navy and Air Force, obstetrics and gynecology was second in order of frequency, with "other specialty services" the third in order for the Navy and pediatrics the third for the Air Force. Table 15 shows the percentage and types of care.

TABLE 9.—*Number and Percentage Distribution of Physicians by Type of Governmental Medical Training Received*

	Army		Navy		Air Force	
	No.	%	No.	%	No.	%
Basic course, Medical Field Service School	309	54.9	12	1.7	41	11.1
Marine Medical Officers Training	0	0.0	45	6.4	0	0.0
Advanced course, Medical Field Service School	11	2.0	1	0.1	1	0.3
Marine Field Service Training	1	0.2	44	6.2	0	0.0
School of Aviation Medicine	2	0.3	30	4.3	128	34.8
Amphibious Forces Training School	2	0.3	52	7.4	0	0.0
Other schools	138	24.5	158	22.4	101	27.4
No response	100	17.8	363	51.5	97	26.4
Total	563	100.0	705	100.0	368	100.0

TABLE 10.—*Physicians' Evaluation of Military Medical Training*

	Army, %	Navy, %	Air Force, %
Satisfactory	77.0	70.6	83.6
Unsatisfactory	23.0	29.4	16.4
Unsatisfactory and insufficient training in			
Military customs, administration, and regulations	17.6	13.9	23.1
Base orientation and indoctrination	9.3	38.4	26.9
Military medicine	13.0	8.0	3.9
Field duty	12.0	3.3	1.9
Miscellaneous	48.1	36.4	44.2
	100.0	100.0	100.0
Total	100.0	100.0	100.0

TABLE 11.—*Physicians' Evaluation of Assignment*

	Army, %	Navy, %	Air Force, %
Properly assigned	77.1	66.7	82.7
Not properly assigned	22.1	32.4	16.7
No response	0.8	0.9	0.6
Total	100.0	100.0	100.0

TABLE 12.—*Physicians' Satisfaction with Assignment*

	Army, %	Navy, %	Air Force, %
Satisfied	73.6	68.4	77.3
Not satisfied	25.6	30.3	21.3
No response	0.8	1.3	1.4
Total	100.0	100.0	100.0

DUTIES THAT COULD HAVE BEEN PERFORMED ADEQUATELY BY OTHER PERSONNEL

A total of 1,380 physicians answered the question pertaining to duties that could have been performed by other personnel; 120 physicians did not reply of this number, 636, or 46.1%, stated that their duties could not have been performed adequately by other personnel, while 744, or 53.9%, felt their duties could have been performed by other personnel. The 744 physicians who responded to this multiple-answer question in the affirmative gave detailed information as shown in table 16.

PHYSICIANS WHO WOULD VOLUNTARILY REMAIN IN SERVICE

In response to the question relative to military service beyond the obligated tour of duty, 373 physicians indicated they would not be willing to stay in military service for more than their two years of service under any circumstances. A total of 816 physicians indicated they would serve an additional period under certain conditions. There were 311 who failed to reply to the question. Table 17 reflects the reasons or conditions under which an additional period of service would be acceptable.

TABLE 13.—*Percentage of Time Spent in Treating Military Personnel, Dependents of Military Personnel, and Others*

Percentage of Time	Under 20%	20-50%	50% and Over
Military personnel			
Domestic	20.6	28.6	50.8
Overseas	22.6	29.9	47.5
Dependents of military personnel			
Domestic	34.9	36.9	28.2
Overseas	43.8	21.5	34.7
Administrative duties			
Domestic	63.9	21.0	15.1
Overseas	54.9	31.3	13.8
Idle			
Domestic	50.0	17.2	32.8
Overseas	37.0	23.9	39.1
Other			
Domestic	42.9	16.2	40.9
Overseas	56.0	15.2	28.8

TABLE 14.—*Breakdown of Time Allotted to Military Personnel and Their Dependents*

	Military Personnel		Dependents	
Percentage of Time	Domestic	Overseas	Domestic	Overseas
0-19	20.6	22.6	34.9	43.8
20-49	28.6	29.9	36.9	21.5
50 and over	50.8	47.5	28.2	34.7
Total	100.0	100.0	100.0	100.0

TABLE 15.—*Distribution of Physicians by Type of Nonmilitary Medical Assignments*

	Army		Navy		Air Force	
	No.	%	No.	%	No.	%
General medical and hospital care	90	11.7	81	8.5	75	13.2
Obstetrics and gynecology	91	11.9	142	14.9	87	15.3
Pediatrics	71	9.2	117	12.3	75	13.2
Outpatient care	203	26.4	270	28.4	169	29.6
Other specialty services	105	13.7	118	12.4	71	12.5
Surgery	97	12.6	69	7.3	55	9.6
Contagious diseases	1	0.1	3	0.3	0	0.0
Miscellaneous	6	0.8	9	1.0	2	0.3
Assignment not specified	44	5.7	61	6.4	17	3.0
No response	61	7.9	81	8.5	19	3.3
Total	769	100.0	951	100.0	570	100.0

SUGGESTIONS FOR IMPROVEMENT OF SERVICE GIVEN BY MEDICAL ASSOCIATIONS TO MILITARY PHYSICIANS

A total of 720, or 48.0%, responded to the question concerning the role of national and local medical associations in maintaining closer contact or rendering better service to their members who served as physicians in the armed forces. Of these, 347 had no suggestions. The suggestions of the remaining 373 physicians are tabulated in table 18.

TABLE 16.—*Physicians Indicating Possible Transfer of Duties to Other Personnel*

	Army		Navy		Air Force	
Possible Transfer To:	No.	%	No.	%	No.	%
Nurses	15	2.8	19	2.8	8	2.2
Enlisted personnel	12	2.3	31	4.6	9	2.5
Civilian medical personnel	160	30.2	273	40.4	151	41.9
Personnel not specified	303	57.2	282	41.8	154	42.8
Combinations of health personnel other than physicians	40	7.5	70	10.4	38	10.6
Total	530	100.0	675	100.0	360	100 0

TABLE 17.—*Distribution of Physicians Indicating Conditions of Voluntary Extension of Service Beyond Two Year Requirement*

	Army		Navy		Air Force	
Conditions	No.	%	No.	%	No.	%
Total war	175	31.9	213	34.0	113	30.9
All doctors serving on an equitable basis	2	0.4	5	0.8	1	0.3
Promotion to higher rank	32	5.8	30	4.8	23	6 3
Increase in pay	35	6.4	36	5 7	34	9.3
Given residency or further training	49	8.9	47	7.5	29	7.9
Opportunity to practice specialty	30	55	48	7 6	24	6 6
Choice of duty assignment (hospital duty)	55	10.0	53	8.4	18	4 9
Choice of stable location	15	2.7	38	6.1	32	8 7
Living quarters for family	15	2.7	13	2.1	6	1.6
Request for extension at status quo approved	0	0.0	1	0.2	1	0.3
Extended service time voluntary	28	5.1	22	3.5	14	3.8
Miscellaneous conditions	113	20.6	121	19.3	71	19.4
Total	549	100.0	627	100.0	366	100.0

TABLE 18.—*Suggestions for Improvement of Service Given by Medical Associations to Military Physicians*

Suggested Society Activities	Army	Navy	Air Force
More information, newsletters	49	42	30
Personal visits by civilian physicians to evaluate grievances	50	53	43
Invitation of military physicians to civilian medical meetings	30	31	32
Assistance in locating a position after discharge	14	10	5
Assistance in preventing evasion of military service	16	30	13
Distribution of questionnaires to physicians in service	26	30	17
Provision of specialists for clinical conferences	6	5	2
Miscellaneous suggestions	122	162	75
Total	313	363	217

The Council on National Defense will publish the results of this continuing survey as a special report in THE JOURNAL every six months. Reprints or additional data may be obtained from the Council on National Defense, 535 N. Dearborn St., Chicago 10.

MEDICAL NEWS

CALIFORNIA

Course in Electrocardiography.—The University of California Extension will offer a course in electrocardiography, Wednesdays and Fridays, 7:30-9:30 p. m., from Nov. 30 to Dec. 16 in room 2276 of the Chemistry-Geology Building on the U. C. L. A. campus. The course will stress primarily the features of unipolar electrocardiography and will consist of lectures with lantern slides. Instructor will be Dr. Morley J. Kert, assistant clinical professor of medicine at U. C. L. A. Fee for the course is $20. Request for information should be made to Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, University of California Medical Center, Los Angeles 24.

Society News.—Officers for 1955 of the Los Angeles Obstetrical and Gynecological Society include Dr. Samuel M. Martins, Los Angeles, president; Dr. Ralph H. Walker, North Hollywood, vice-president; and Dr. Walter C. Rogers, Pasadena, secretary-treasurer.——New officers of the Allergy Foundation of Northern California include: Dr. M. Coleman Harris, San Francisco, chairman of the board of governors; Dr. Grace M. Talbott, San Francisco, vice-chairman; and Dr. Albert P. Rowe Jr., Oakland, secretary-treasurer.——The Los Angeles Radiological Society recently elected Dr. George F. Jacobson, Los Angeles, president; Dr. Hubert J. Prichard, Long Beach, vice-president; Dr. Samuel C. Kahlstrom, Los Angeles, treasurer; and Dr. Richard A. Kredel, Pasadena, secretary.

Dr. Bullock Honored.—Dr. Lewis T. Bullock, chairman, research committee, Los Angeles County Heart Association, and an associate clinical professor of medicine, University of Southern California School of Medicine, Los Angeles, was presented recently with a framed scroll bearing more than 100 signatures at a testimonial dinner. The award cited Dr. Bullock's "service on behalf of mankind and selfless efforts in developing the program of research which has made this area one of the leading centers of cardiovascular research." Dr. Paul Starr, head, department of medicine in the University of Southern California School of Medicine, presented the scroll, and Dr. Albert A. Kattus, associate professor of medicine, University of California at Los Angeles School of Medicine, was master of ceremonies. Among the speakers were Drs. Walter E. MacPherson, Gordon E. Goodhart, Stafford L. Warren, Myron S. Prinzmetal, and John S. Lawrence.

CONNECTICUT

Guest Speakers at Hospital.—In its guest speaker program, Saturdays, 11 a. m., the Hartford Hospital presents Dr. Howard A. Rusk, professor of physical medicine and rehabilitation, New York University College of Medicine, and medical consultant to the Rehabilitation Division of the Veterans Administration and the United Nations, who will discuss the dynamic approach to chronic disease Dec. 3; and Dr. Averill A. Liebow, professor of pathology, Yale University School of Medicine, New Haven, who will conduct a clinical pathological conference Dec. 10.

ILLINOIS

Hospital Chosen for Hemoglobin Study.—The Highland Park Hospital has been chosen as one of 125 hospitals in the United States, Canada, and England to participate in research on standardizing tests for hemoglobin.

Cardiologists Meet in Springfield.—Scientific sessions on cardiovascular diseases will be conducted by the Illinois Heart Association in cooperation with the Illinois Department of Public Health and the Sangamon County Medical Society, Dec. 1, at the Hotel St. Nicholas, Springfield. Dr. Arnold S. Moe, East St. Louis, will be chairman of the afternoon session, at which the following guest presentations will be made:

Cardiac Surgery, William S. Dye Jr., Chicago.
Diagnosis and Management of Rheumatic Fever, Bernard A. Schwartz, Cincinnati.
Coronary Heart Disease, Paul S. Barker, Ann Arbor, Mich.
Instrumental Diagnosis of Heart Disease, E. Grey Dimond, Kansas City, Kan.

At 4:15 p. m. the guest speakers will participate in a panel discussion moderated by Dr. Edward W. Cannady, East St. Louis. A social hour, 5:30 p. m., will precede the dinner session; at which Dr. Stanley L. Levin, Danville, president, Illinois Heart Association, will serve as chairman and will deliver an address, "Your Heart Association in Action." Greetings will be extended by Dr. David J. Lewis, Springfield, president, Sangamon County Medical Society. Dr. Kenneth G. Kohlstaedt, Indianapolis, the featured speaker, will have as his topic "Management of Hypertension."

Chicago

Dr. James Miller Goes to Michigan.—Dr. James G. Miller has been appointed professor of psychiatry and head of the new Mental Health Research Institute, University of Michigan Medical School, Ann Arbor. Dr. Miller has been chairman of the department of psychology and of the committee on behavioral sciences at the University of Chicago since 1951.

Society News.—Newly elected officers of the Chicago Council of Child Psychiatry include: Dr. Irene M. Josselyn, president; Dr. Adrian H. Vander Veer, president-elect; and Dr. Harry M. Segenreich, secretary-treasurer.——The Dr. Jerome D. Solomon Memorial Research Foundation will present "A Night for a King" at the Conrad Hilton Hotel, Dec. 10, 8 p. m. Reservations ($15 per couple, including dancing, entertainment, and midnight supper) may be made through the reservation chairman, Mrs. David Berke, 3172 N. Sheridan Road, Chicago 14. Irv Kupcinet, Sun-Times columnist, will serve as master of ceremonies.

Death of Carl Moore.—Carl R. Moore, Ph.D., an authority on the biology of sex and chairman of the University of Chicago department of zoology, died Oct. 16 in Albert Merritt Billings Hospital. Dr. Moore, who began his studies before sex hormones were isolated, contributed to their isolation. His work on the effect of hormones aided in the development of treatment for prostate cancer in men and breast cancer in women. In 1950 he received the fifth scientific award of the American Urological Association and last June was awarded a medal by the Endocrine Society in recognition of his distinguished contributions to endocrinology. Dr. Moore had been a member of the faculty of the University of Chicago since 1914.

Dr. Hellebrandt Retires.—Dr. Frances A. Hellebrandt retired Sept. 1 as head, department of physical medicine and rehabilitation, University of Illinois College of Medicine. She will live in Athens, Ohio, where she will devote full time to historical research and scientific writing. Dr. Hellebrandt came to the university in 1951 as a department head. She previously directed the Baruch Center of Physical Medicine at the Medical College of Virginia, Richmond, and was head of the section on physical medicine and associate professor of physiology, University of Wisconsin Medical School, Madison. Succeeding Dr. Hellebrandt as department head is Dr. David I. Abramson, a staff member of the department of medicine since 1946.

Conference on Retirement.—A conference on general retirement problems of industry will be held Nov. 30, 9 a. m.-4 p. m., in the Sherman Hotel under the joint sponsorship of the Chicago Heart Association and the Chicago Association of Commerce and Industry. In the morning the theme will be "Postponing Premature Retirement"; in the afternoon, "Approaches to Retirement." At luncheon Dr. Irving S. Wright,

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

past-president of the American Heart Association and professor of clinical medicine, Cornell University Medical College, New York, will discuss "Chronological Age vs. Biological Age as a Basis for Retirement." The other luncheon speaker will be Meyer Kestnbaum, M.B.A., Chicago, president of Hart, Schaffner & Marx. Luncheon reservations ($3, including tip) may be made through the headquarters of the Chicago Heart Association, 69 W. Washington St., Chicago 2, telephone: FInancial 6-4675.

KANSAS

Refresher Course in Surgery.—The University of Kansas School of Medicine will present its 11th annual postgraduate refresher course in surgery (fee, $60) Jan. 16-19, 1956, at the Kansas University Medical Center in Kansas City. The program will include operative clinics with color television, cine clinics, ward walks, basic sciences in surgery, and surgical treatment of injury and cancer. Program announcements and registration cards can be obtained from the Department of Postgraduate Medical Education, University of Kansas Medical Center, Kansas City 12.

Student Loan Fund.—The Kansas Medical Society has announced the creation of the John M. Porter Memorial Student Loan Fund for junior and senior students at the University of Kansas School of Medicine. Dr. Porter died Sept. 5 during his term of office as president of the society. Contributions may be sent to the society office, 315 W. Fourth St., Topeka, with checks made payable to Porter Memorial. Those who wish to claim tax exemption for their gifts to the fund may make checks payable to American Medical Education Foundation (535 N. Dearborn St., Chicago 10) with an accompanying note stating that the amount is intended for the John M. Porter Memorial Student Loan Fund at the University of Kansas School of Medicine.

MAINE

Postgraduate Course in Anesthesiology.—Physicians are welcome to attend the postgraduate educational program in anesthesiology offered by the Maine General Hospital, Portland, in the house officers' quarters from 4 to 5 p. m. on the first and third Fridays of each month. On Dec. 2 the lecture will deal with barbiturate poisoning and on Dec. 16 with spinal anesthesia.

MASSACHUSETTS

New England Diabetes Association.—A meeting of the New England Diabetes Association will be held Nov. 28 at 8 p. m. in the Joslin Auditorium of the New England Deaconess Hospital, Boston. Dr. Laurance W. Kinsell, medical director, Alameda County Hospital, Institute for Metabolic Research, Oakland, Calif., will discuss "Hypophysectomy in Juvenile Diabetes with Progressive Vascular Disease." There will also be speakers on surgical and endocrine aspects of this problem.

MICHIGAN

Society News.—The Michigan regional meeting of the American College of Physicians will be held at the Sheraton-Cadillac Hotel in Detroit, Dec. 3. There will be a banquet in the evening. Members of the medical profession are invited, and residents and interns are especially welcome.

Ballim Lecture.—Dr. Irving S. Wright, professor of clinical medicine, Cornell University Medical College, New York, will deliver the annual Max Ballim Memorial Lecture at a dinner sponsored by Sinai Hospital, Dec. 1, at the Sheraton-Cadillac Hotel, Detroit, where he will speak on peripheral vascular disease.

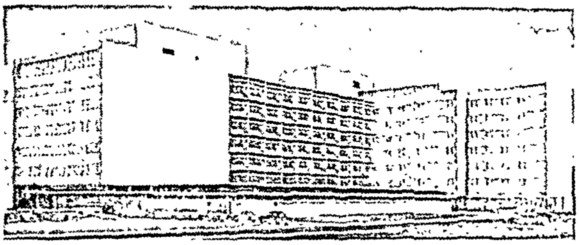
Hearing Research Project.—Wayne University College of Medicine, Detroit, announces a research project involving study of the ears of 60 vertebrate and invertebrate animals to increase understanding of the human ear and its diseases. The study, directed by Dr. Heinrich F. G. Kobrak, professor of otolaryngological research, is being financed by the Beltone Institute for Hearing Research. The study will include the ear of a whale and the hearing mechanism of a cockroach, as well as those of fish, reptiles, Amphibia, birds, and mammals.

MISSISSIPPI

Society News.—The Mississippi Academy of General Practice recently installed Dr. William E. Lotterhos, Jackson, as president and named Dr. Aubrey V. Beacham, Magnolia, president-elect; Dr. Amon K. McMillan, Lucedale, vice-president; and Dr. Robert M. Seawright, Bolton, secretary-treasurer.

Personal.—Dr. James D. Hardy, professor of surgery and director of surgical research, University of Mississippi Medical Center, Jackson, presented "Fluid Therapy in Burns" and "Potassium Metabolism and Therapy" at a postgraduate course on fluid and electrolyte balance at the University of Colorado School of Medicine, Denver, Nov. 10-12.

University Medical Center.—Constructed at a cost of nine million dollars, the University of Mississippi Medical Center, Jackson, was dedicated Oct. 24. The center houses, in one seven-story plant, a teaching hospital, outpatient clinic, research facilities, library, school of nursing, and the school of medicine. It was begun in 1950, when the state legislature appropriated funds, later augmented by Hill-Burton and Hinds County money. Faculty and physical equipment have been transferred from the two-year medical school at the University of Mississippi in Oxford to the new center. The two wings of the 350-bed teaching hospital, activated July 1, form the crossbar of the T-shaped building with the medical school, extending mid-centrally from the hospital section, forming the stem. Floor space is slightly over 10 acres.



Medical Center in Jackson.

MISSOURI

Dr. Lowry Appointed Dean.—Dr. Oliver H. Lowry, head of the department of pharmacology, Washington University School of Medicine, St. Louis, has been named dean to succeed Dr. Carl V. Moore, who resigned to devote full time to research and teaching.

Hospital News.—The new $1,580,000 Renard Hospital, the psychiatric unit of Washington University-Barnes Medical Center, St. Louis, was dedicated Oct. 10 at the medical center. Construction of the new seven-story, 100-bed hospital was begun in 1952 with the aid of Hill-Burton funds.

Personal.—Dr. Daniel L. Sexton, associate professor of medicine, St. Louis University School of Medicine, is the recipient of the 1955 Distinguished Service award given by the Mississippi Valley Medical Society to a member "who has rendered unusual and distinguished service to the medical profession." Dr. Sexton is president of the St. Louis Medical Society.

Society News.—At 8:30 p. m. Nov. 29, the St. Louis Medical Society will present a panel, "Modern Management of Pulmonary Tuberculosis," with Dr. Paul Murphy as moderator and Dr. Alfred Goldman and Dr. Thomas H. Burford (by invitation) as participants. On Dec. 20, 8:30 p. m., "Simple Mastectomy and Irradiation Therapy in the Treatment of Cancer of the Breast—An Evaluation of Dr. McWhirter's Method Based on Personal Study of His Cases" will be the topic of Dr. Lauren V. Ackerman, professor of surgical pathology, Washington University School of Medicine, St. Louis.

NEW YORK

Albert Research Institute.—The Isaac Albert Research Institute, named in honor of the president of the Jewish Chronic Disease Hospital at Brooklyn, has been established at the hospital to promote the development of research laboratories and improve the facilities for studies in the field of chronic diseases.

Part-Time Physicians Needed in Chest Clinics.—The health department plans to open new chest clinics in the Bronx and in Brooklyn. Applications for part-time positions may be obtained by writing to the Bureau of Tuberculosis, 125 Worth St., New York 13. Pay for a three-hour session is $15.

Brooklyn Doctors' Symphony Orchestra.—Physicians, dentists, and others engaged in allied professions are invited to become members of the Brooklyn Doctors' Symphony Orchestra, of which Dr. Jacob Leffert is president. Rehearsals are held every Wednesday at 8:30 p. m. in the auditorium of the Brooklyn High School for Home Making, 901 Classon Ave. For details call Miss Ethel Leitman, secretary of the orchestra, at SLocum 6-2252.

Hospital News.—Sister Mary Aquinas, superintendent of St. James Mercy Hospital, Hornell, was recently honored by Hornell and area residents on the occasion of her golden jubilee. Honored with her was Sister May de Sales, who came to the hospital 55 years ago. Sister Aquinas supervised the maternity department for 29 years, rose to be administrator, and during her administration added the hospital's million dollar wing. The 35-bed hospital of 1905 is now a modern 152-bed hospital.

University News.—Albany Medical College, Albany, announces the following promotions in the department of psychiatry: from assistant professor to associate professor, Dr. Frederick D. McCandless; from instructor to assistant professor, Dr. John D. LaTendresse; from assistant to instructor, Dr. Janis L. Best.——Dr. Stanley M. Ball, assistant neurologist at the Neurological Institute of the Columbia-Presbyterian Medical Center, New York City, has been appointed neurology instructor at Albany Medical College, Albany.——Dr. Richard C. Troutman, assistant professor of clinical surgery (ophthalmology) at Cornell University Medical College, New York City, has been named to the joint post of professor of ophthalmology at the State University of New York College of Medicine at New York City in Brooklyn and director of ophthalmology at the Kings County Hospital, Brooklyn, both on a part-time basis. Dr. Troutman has been affiliated with New York Hospital, Manhattan Eye, Ear and Throat Hospital, New York City, and the Payne Whitney Psychiatric Clinic, New York City.

New York City

Wechsler Lecture.—The first Israel S. Wechsler Lecture will be given on the evening of Dec. 2 at the Mount Sinai Hospital by Dr. John F. Fulton, Sterling Professor of the History of Medicine, Yale University School of Medicine, New Haven, Conn. Dr. Fulton will present "Some Historical Backgrounds of Clinical Neurology" at 8:30 p. m.

Bela Schick Lecture.—The Bela Schick Lecture, "Malformations: Some New Studies of an Old Problem," will be delivered by Dr. Rustin McIntosh, Carpentier Professor of Pediatrics, Columbia University College of Physicians and Surgeons, New York, at 8:30 p. m., Nov. 30, in the Blumenthal Auditorium of Mount Sinai Hospital (Fifth Avenue at 99th Street).

Animal Care Panel.—The Animal Care Panel, an organization of investigators, administrators of animal quarters, animal breeders, and others interested in the care of experimental animals, will meet Dec. 1-2 at the Henry Hudson Hotel (353 W. 57th St.). The program will comprise papers dealing with the physiology and behavior of laboratory animals, their diseases, nutrition, and related problems.

Thomas Salmon Lecture.—"Psychiatric Education and Progress" will be the subject of the 1955 Thomas William Salmon Lecture by Dr. John C. Whitehorn, Nov. 30 (2:30 and 8:30 p. m.) at Hosack Hall of the New York Academy of Medicine. Dr. Whitehorn, professor of psychiatry, Johns Hopkins University School of Medicine, Baltimore, is a former president of the American Board of Psychiatry and Neurology and of the American Psychiatric Association.

Pediatricians Honor Bret Ratner.—At the annual meeting of the American Academy of Pediatrics, the section on allergy presented to Dr. Bret Ratner a scroll with the following inscription: "By unanimous vote of the Section on Allergy of the American Academy of Pediatrics, assembled in Chicago at the Twenty-third Annual Meeting of the Academy, this Scroll is awarded to Bret Ratner, M.D., as an expression of gratitude and appreciation for his untiring services in advancing Pediatric Allergy, As a pioneer investigator and teacher, As organizer of the Section on Allergy and its first Chairman, For his successful efforts in obtaining recognition by certification for Pediatric Allergists in the Subspecialty of Pediatric Allergy."

Conference on Heart Disease.—The New York Heart Association will hold an all-day conference on rheumatic fever and heart disease Nov. 29 at the Biltmore Hotel. Speakers at the morning session will be:

Maclyn McCarty, New York, Biologically Active Products of Group A Streptococci.
Gene H. Stollerman, Chicago, Prophylaxis Against Rheumatic Fever.
Currier McEwen, New York, Treatment of Rheumatic Fever and Carditis.
Robert P. Glover, Philadelphia, Surgical Treatment of Heart Conditions.

Dr. Katharine Dodge Brownell, chairman of the New York Heart Association public health committee, will deliver the opening address at the afternoon session. A panel discussion will follow.

Pediatric Fellowships.—The children's division of the Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, announces the availability of two fellowships in pediatric rehabilitation for pediatricians, made possible by funds supplied by the Association for the Aid of Crippled Children. Training will be offered in the rehabilitation of children with disabilities resulting from neuromuscular, muscular, and orthopedic conditions. The stipend is $4,000, and the training period is one year, beginning Jan. 1 or July 1, 1956. Information can be obtained by writing Dr. George G. Deaver, Director, Children's Division, Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, 400 E. 34th St., New York 16.

NORTH CAROLINA

Dr. Carter Honored.—The Carter Travel Club, a group of 48 obstetricians and gynecologists who trained at least one year under Dr. F. Bayard Carter, chairman, department of obstetrics and gynecology, Duke University School of Medicine, Durham, recently presented a portrait of Dr. Carter to the medical school. Dr. Carter, who is president of the American Board of Obstetrics and Gynecology, was awarded the Algernon Sydney Sullivan award last year for "selfless devotion to humanity . . . Countless acts of kindness and generosity to the sick, to the unfortunate and to his associates reflect the nobility of mind and heart which motivates his daily life." A member of the Duke faculty since 1931, Dr. Carter previously taught at Yale University School of Medicine, New Haven, Conn., and was head of the department of obstetrics and gynecology, University of Virginia School of Medicine, Charlottesville. The Carter Travel Club was organized in his honor in 1951 to promote further knowledge in the field of obstetrics and gynecology.

OKLAHOMA

Society News.—Dr. Stewart G. Wolf Jr., professor of medicine, University of Oklahoma School of Medicine, Oklahoma City, will be guest speaker at the dinner meeting of the Tulsa Academy of General Practice Nov. 28, 6:30 p. m. at the Hotel Tulsa, discussing "Evaluation of Gastro-Intestinal Symptoms." For reservations call LUther 2-5904. The scientific program will begin at 8 p. m. Physicians, including those who are not members of the academy, are invited. Dr. Wolf was formerly associate professor of medicine at Cornell University Medical College, New York.

Medical History Tape Recorded.—Experiences of Oklahoma's pioneer physicians are now tape recorded, through the efforts of the Oklahoma State Medical Assistants Society, which presented a recorder and a supply of tape to the department of archives of the University of Oklahoma for the recording of events of medical history. The first tape recordings were made during the annual meeting in Tulsa in May. In July, a few weeks before the death of Dr. William W. Rucks Sr., Oklahoma City, a recording of his reminiscences was made by the archives department.

Tumor Conference.—The Oklahoma division of the American Cancer Society has announced its third annual tumor conference to be held Dec. 2 at the Huckins Hotel, Oklahoma City. Visiting speakers include Drs. Luke W. Able, professor of pediatric surgery, Baylor University College of Medicine, Houston, Texas; Charles S. Cameron, medical director, American Cancer Society, New York; H. Close Hesseltine, professor of obstetrics and gynecology, University of Chicago School of Medicine; Samuel F. Marshall, surgeon, the Lahey Clinic, Boston; and David A. Wood, director of the Cancer Research Institute, University of California School of Medicine, San Francisco. The program, held in conjunction with the annual meeting of the Oklahoma division of the American Cancer Society, will feature two papers by each of the guest speakers. A clinical pathological conference will be held at 8 a. m. There will be no registration fee, but doctors are requested to register in advance by writing the Oklahoma Division, American Cancer Society, 937 Commerce Exchange Building, Oklahoma City. Reservations are needed for the noon luncheon and evening session. The program will close with the annual dinner of the Oklahoma division of the American Cancer Society at 7 p. m., to which all doctors are invited. The guest speaker will be Dr. Charles S. Cameron, New York.

PENNSYLVANIA

Rheumatic Fever Prevention Study.—A study to establish criteria for streptococcal control in the school population as a nationwide basis for community programs on rheumatic fever prevention will be conducted in three Philadelphia elementary schools by the Heart Association of Southeastern Pennsylvania in cooperation with the American Heart Association and local groups. Earlier studies in a military population demonstrated the efficacy of prompt and adequate penicillin treatment of streptococcal infections in preventing initial rheumatic fever attacks. The Philadelphia study will continue for at least one year. Director is Dr. John P. Hubbard, professor of preventive medicine at the University of Pennsylvania School of Medicine, Philadelphia, who will be assisted by Dr. David Cornfield of the department of preventive medicine and pediatrics.

Philadelphia

Hospital News.—The medical staff of the Presbyterian Hospital has subscribed $115,826 toward the institution's 4 million dollar modernization fund.——Mrs. Henry P. Brown Jr., her three sons, and three daughters have given enough money to build an entire floor in one of Presbyterian Hospital's proposed new wings. The contribution was made in memory of the late Dr. Henry P. Brown Jr., who was a surgical chief at Presbyterian Hospital from 1933 to 1947 and was elected consulting surgeon on the hospital's staff in 1947.

Society News.—*The 69th annual banquet of the Association of* Ex-Resident and Resident Physicians of the Philadelphia General Hospital will be held at the Penn Sherwood Hotel, 39th and Chestnut streets, Dec. 6. Dr. Thomas Klein will be the honored guest at the dinner, and Dr. Samuel B. Hadden, retiring president of the association, the toastmaster. Cocktails in the oyster bar (6 p. m.) will precede dinner, 7 p. m. Reservations may be procured by writing to the secretary-treasurer, Dr. John D. Corbit Jr., 3717 Chestnut St., Philadelphia 4.

Lectures on Medical Writing.—A new series of lectures on medical writing has been initiated by the Graduate School of Medicine of the University of Pennsylvania. On Nov. 10, "Medical Writing and the Physician" was presented by Dr. Jacques P. Gray, lecturer on medical writing, Parke, Davis and Company, Detroit, and on Nov. 17, "Medical Writing and the Public" by Mr. Pierre C. Fraley, medical editor, *Philadelphia Evening Bulletin.* On Dec. 1 "Medical Illustration" will be discussed by Miss Edna C. Hill, medical illustrator, Hospital of the University of Pennsylvania; "Bibliographic Research" by Miss Virginia Beatty, Library of the Philadelphia College of Physicians; and "Editorial Requirements" by Robert Rowan, managing editor, W. B. Saunders Company. "Selection of Material for Publication" will be the topic on Dec. 8 of Dr. Morris Fishbein, Chicago. "Art of Medical Writing; Use of Words" will be considered Dec. 15 by Dr. Paul R. Hawley, Chicago, director, American College of Surgeons. On Jan. 12, 1956, "Art of Readable Medical Writing" will be presented by Rudolf Flesch, Ph.D., author and educator. The meetings will be held in the Zoology Amphitheatre, 39th Street and Hamilton Walk, at 7 p. m.

Personal.—The Lebanese Republic has awarded a citation and a medal of Knight of the Order of Cedars to Dr. Hobart A. Reimann, formerly professor of medicine, Jefferson Medical College of Philadelphia, for medical services to the people of Lebanon while serving as visiting professor of medicine at the American University of Beirut since 1952.——Dr. Harry E. Bacon, head, department of proctology, Temple University School of Medicine, has been elected an honorary fellow of the Japanese College of Surgeons and the Philippine College of Surgeons. More recently he was given an honorary fellowship in the Brazilian College of Surgeons and the Turkish Surgical Society of Istanbul.——Dr. Donald L. Glenn, regional medical officer of the eastern region, Pennsylvania Railroad, has been appointed medical director, to succeed Dr. Norbert J. Roberts, who resigned. Dr. Glenn has been affiliated with the George F. Geisinger Memorial Hospital and Foss Clinic, Danville, the Mayo Clinic, Rochester, Minn., and the Carle Memorial Hospital Clinic, Urbana, Ill.——Standard Oil Company (New Jersey) has appointed as associate medical director Dr. Norbert J. Roberts, who was a member of its medical department from 1949 to 1952. For three years, Dr. Roberts has been medical director of the Pennsylvania Railroad.

RHODE ISLAND

Grant for Critical Care Unit.—The Rhode Island Hospital, Providence, has received a grant of $56,000 from the John A. Hartford Foundation for the development and evaluation of a specially designed 28-bed nursing unit in the new hospital building to be dedicated soon. This new type of unit, staffed with specially trained personnel, will meet the postoperative needs of patients who have undergone extreme surgery and will also provide more adequate care for critically ill patients.

VIRGINIA

Meeting of Oto-Ophthalmologists.—The Virginia Society of Ophthalmology and Otolaryngology will hold its annual fall [illegible] at the Baruch Auditorium, Medical College of Virginia, Nov. 29-Dec. 2. The speakers for the otolaryngology program, Tuesday and Wednesday, will be Drs. Victor Alfaro and Aram Glorig, Washington, D. C.; Lawrence R. Boies, Minneapolis; Robert J. Huebner, Bethesda, Md.; Lyle M. Sellers, Dallas, Texas; Ben H. Senturia, St. Louis; and Henry P. Wagener, Rochester, Minn. The ophthalmology program (Thursday and Friday) according to the announcement will have as speakers Drs. Howell W. Brown, James Spencer Dryden, Washington, D. C., William M. Hart, Bethesda, Md., William Howard, Edward Norton, and Henry P. Wagener.

Personal.—Dr. Ezra Goyings Jr., Richmond, has been appointed to the staff of Greenbrier Valley Hospital in Ronceverte, W. Va. ——Dr. Hubert D. Crow, health director at Fredericksburg since 1948, has been appointed director of the state health department's new medical training section. He will also, with the help of an assisting physician, carry the dual post of health director for Suffolk and the counties of Isle of Wight, Southampton, and Nansemond. His headquarters will be in Suffolk, where he succeeds Dr. William H. Michael, who has retired.

GENERAL

Meeting on Thoracic Surgery.—The second annual meeting of the Southern Thoracic Surgical Association will be held at the Greenbrier, White Sulphur Springs, W. Va., Dec. 2-5. The guest speaker, Dr. C. Walton Lillehei, University of Minnesota Medical School, Minneapolis, will discuss "Experiences with Open Cardiac Procedures for Various Congenital Conditions."

Grants in Cerebral Palsy.—United Cerebral Palsy, 369 Lexington Ave., New York 17, has approved 46 grants totaling $395,000 as the spring series of its 1955-1956 research and training program, of which 23 are for medical research. The remainder will be used to train professional personnel to make treatment and other care available to more of the cerebral palsied. Included are fellowship and scholarship programs for physicians, physical and occupational therapists, teachers, dentists, vocational guidance counselors, and pediatric neurologists. Other training grants support summer workshops or year-round training programs at hospitals and universities.

Safe Driving Day.—The President's Committee for Traffic Safety is sponsoring a special day dedicated to safe driving, S-D Day, Dec. 1, in an attempt to hold deaths and injuries to the lowest possible level for a 24-hour period. The National Safety Council points out that "while perfection probably is too much to expect—even for one day—from a combination of about 72 million drivers and 58 million motor vehicles, no sensible person would argue for a minute that the usual toll cannot be substantially cut by more sensible driving." It is hoped that the S-D Day record this year will show an improvement over the 15% reduction in deaths achieved on S-D Day last year.

Hematologists Meet in Boston.—The International Society of Hematology will hold its sixth congress at the Hotel Somerset in Boston, Aug. 27-Sept. 1, 1956, under the presidency of Dr. William Dameshek of that city. Themes of the session will include immunohematology (Monday); nucleonics in hematology (Tuesday); leukemia and related states (Thursday); anemia (Friday); and hemorrhagic disorders (Saturday). An all-day excursion on the ocean-going Boston Belle to Provincetown at the tip of Cape Cod, a New England clambake, and moonlight dancing are planned for Wednesday. Communications should be addressed to the International Society of Hematology, New England Medical Center, Harrison Avenue at Bennet Street, Boston 11.

Southern Surgical Association.—The 67th annual session of the Southern Surgical Association will convene at the Homestead Hotel, Hot Springs, Va., Dec. 6-8 under the presidency of Dr. Carrington Williams, Richmond, Va. The presidential address Tuesday, 9:30 a. m., will be followed by "The Treatment of Mass Casualties in Disaster" by Dr. Frank B. Berry, Washington, D. C. The 44 presentations scheduled include participation by 26 invited speakers. The association cocktail party Wednesday, 6:30 p. m., will precede the dinner at which Dr. John M. T. Finney Jr., Baltimore, will serve as toastmaster. The guest speaker, Sir Yevrah Enots, M.D., H.K.R.S., of Addis Ababa, Abyssinia, will discuss "Some Experiences of a Surgeon at a Royal Court."

Typhoid Infection.—According to the U. S. Public Health Service, the California Department of Public Health reported typhoid infection in a 70-year-old woman who had a hip abscess from which a culture revealed Salmonella typhosa, phage type C. The patient had had typhoid fever at the age of 12. The abscess was discovered 58 years later, 3 years after an open reduction and nailing for fracture of the right femur following an automobile accident. An infection was reported also in a 46-year-old woman who had an abscess at the site of a cholecystectomy scar. Salmonella typhosa, phage type 26, was isolated from this abscess. The patient stated that she had never had typhoid fever. She had spent 14 years in Mexico and had made numerous return visits.

Certification of Psychiatrists.—At the October meeting of the American Board of Psychiatry and Neurology, the following regulations were adopted: 1. *All applicants who wish to qualify* for examination for certification in psychiatry or neurology under the regulations relating to training credit and who began training on or after July 1, 1956, must show that at least 24 months of their residency training have been secured in residency training programs approved for at least two years of residency training in the specialty in which they seek certification. 2. Because of an increase of all expenses in conducting the examination, the following fee schedule will be in effect as of Jan. 1, 1956: application fee, $50; examination fee, $75; complete reexamination fee, $75; partial reexamination fee, $50.

Meeting on Clinical Research.—The eastern section of the American Federation for Clinical Research will hold its annual meeting Dec. 2-3 at the College of Physicians Building (19 S. 22nd St., Philadelphia). During the opening session Friday morning "Peripheral Venous Responses to Body Cooling and Warming in Man" will be presented by Drs. J. Edwin Wood and John W. Eckstein, Boston (by invitation), and "Hemodynamic Effects of the Hufnagel Valve" by Drs. Joseph Roshe and J. Alexander Haller Jr., Bethesda, Md. (by invitation). The 37 presentations will include participation by 53 invited speakers. The National Drug Company, Philadelphia, will be host at luncheon on Friday. The social hour, courtesy of Smith, Kline and French, will precede the dinner Friday, at which Wyeth Laboratories will be host.

Chest Physicians Meet in Boston.—The interim session of the American College of Chest Physicians will be held at the Sheraton-Plaza Hotel, Boston, Nov. 27-28. A scientific program, sponsored by the New England states chapter of the college, will include panel discussions, "The Short-of-Breath Patient" and "Hemoptysis," and a diagnostic-treatment conference. Round-table luncheon discussions are scheduled on cor pulmonale and on antimicrobial agents. At the cocktail party and dinner Dr. James H. Stygall, Indianapolis, president, American College of Chest Physicians, will be the guest of honor. Fireside conferences are planned on emphysema, tumors of the lung, coronary disease, immunity and vaccination in tuberculosis, angiocardiography, and advances in cardiac surgery. All physicians are cordially invited to attend the scientific sessions; there is no registration fee.

Conference on Public Welfare.—The 25th anniversary of the American Public Welfare Association will be celebrated at the biennial round-table conference, Nov. 30-Dec. 3, in the Hotel Statler, Washington, D. C. The opening session Wednesday morning will be addressed by Charles I. Schottland, commissioner of social security, Social Security Administration, Department of Health, Education, and Welfare, Washington, D. C. The round-table discussions will include: Public Welfare Services for Older People; (1) Improving the Quality of Tax-Supported Medical Care and (2) Public Child Welfare Services—Past and Future (Thursday morning); (1) Purposeful Living Through Rehabilitation and (2) What Should the Welfare Department Expect from the Health Department? (Friday morning); Mental Health and the Community (Friday afternoon); and Standards Help in Care of the Chronically Ill (Saturday morning).

Meeting on Hypnosis.—The Society for Clinical and Experimental Hypnosis will hold its sixth annual scientific meeting at the New York Academy of Sciences (2 E. 63rd St., New York City) Dec. 3. Remarks by the president, Dr. Jerome M. Schneck, New York City, will precede a program reported here in part:

Use of Hypnosis in Evaluating the Physiological and Psychological Components in the Functional Impairment of the Patient with Multiple Sclerosis, Arthur Shapiro, Brooklyn, and Milton V. Kline, Ed.D. Long Island University, Brooklyn.
Control of the Dumping Syndrome by Hypnosis, Roy M. Dorcus, Ph.D., Los Angeles, and Philip Goodwin, Ph.D., Sawtelle Center, Veterans Administration, Los Angeles.
Hypnosis and the Dissociative Reactions, Louis Jolyon West, University of Oklahoma School of Medicine, Oklahoma City.

Request for dinner reservations (Barbizon Plaza Hotel, Dec. 3, 7 p. m., $7 per person) should be sent with check to J. Stolzenberg, D.D.S., 1 Nevins St., Brooklyn 17.

Symposium on Geriatric Medicine.—A graduate symposium on geriatric medicine will be presented by the American Geriatrics Society Nov. 30-Dec. 1 at the Hotel Roosevelt, New York City. A panel on heart disease Wednesday, 3:45 p. m., will have as moderator Dr. Charles T. Stone Sr., Galveston, Texas, and as participants Drs. David Lehr, Harold E. B. Pardee, Harry Gold, and Robert L. Levy, New York City, and Dr. Wesley E. Peltzer, Salt Lake City. Dr. Walter Bauer, Boston, will moderate a panel on rheumatic diseases Thursday, 2 p. m., at which the participants will be Drs. Russell L. Cecil, Richard H. Freyberg, and Charles A. Ragan, New York City, and Dr. Joseph Lee Hollander, Philadelphia. The sessions will close with a panel on some psychological and psychiatric problems of old age, Thursday, 4:30 p. m. Dr. Edward B. Allen, White Plains, N. Y., will serve as moderator. Dr. Hollis E. Clow, White Plains, N. Y., Dr. David C. Wilson, Charlottesville, Va., and Mr. Clark Tibbitts, chairman, Committee on Aging, Department of Health, Education, and Welfare, Washington, D. C., will be collaborators. Dr. Edward E. Henderson, Montclair, N. J., is president of the society.

Surgeons Meet in Seattle.—The Western Surgical Association will hold its 63rd annual meeting at the Olympic Hotel, Seattle, Dec. 1-3. A premeeting clinic day is scheduled for Nov. 30. Operative clinics will be held at the Virginia Mason Hospital and the Swedish Hospital Wednesday morning. At 1 p. m. buses will leave the Olympic Hotel for the University of Washington School of Medicine, where Dr. Fred T. Kolouch, Twin Falls, Idaho, will serve as moderator for the program at 1:30 p. m. and Dr. Lyon H. Appleby, Vancouver, B. C., as moderator for the program at 2:50 p. m. The local arrangements committee will be host at a cocktail party at the Rainier Club, 6-7:30 p. m. The sessions will open Monday at 8:30 p. m. with "The Treatment of Carcinoma of the Hypopharynx and the Cervical Esophagus" by Dr. Orville F. Grimes, San Francisco (by invitation), after which an invitational address, "Carcinoma of the Esophagus," will be presented by Drs. Gerald S. Wilson and Joel E. Powers, Detroit. In all, the 37 presentations will include participation by 49 other speakers. The presidential address, "Doctor of Both Medicines," will be given by Dr. Michael L. Mason, Chicago, Friday morning. Cocktails Friday, 6:30 p. m., will precede the banquet at 7 p. m. Thursday afternoon is reserved for a cruise on Elliott Bay and Lake Washington. Dinner at the Seattle Yacht Club, 5 p. m., will be followed by a performance at the University of Washington Penthouse Theatre, 8 p. m.

Health Education Meeting.—The New England Health Education Association will present a fall meeting and luncheon testimonial Dec. 2, in Boston, in honor of Ira V. Hiscock, M.P.H., New Haven, Conn., president, American Public Health Association. The morning will be devoted to (1) a tour of the scientific and technical exhibits of the American Medical Association in connection with its clinical session and (2) a special showing of two health education films. At the testimonial luncheon in the Sheraton-Plaza Hotel (advance reservation requested), greetings will be extended by Dr. Elmer Hess, Erie, Pa., President, American Medical Association, before an address, "Health Education and Medical Research" by John E. Fogarty, M.C., Representative from the second Rhode Island District, and chairman, House subcommittee on appropriations, health, welfare, and education. At a meeting open to members and guests, 3 p. m., Dr. Charles C. Wilson, professor of education and public health, Yale University School of Medicine, New Haven, Conn., will serve as moderator for a panel-forum, "Consolidating for School Health Services," in which Drs. John E. Farley, school physician, East Providence, R. I., and Edward W. Colby, health director, Department of Health, Portland, Maine, will participate. Dr. Donald A. Dukelow, Chicago, consultant in health and fitness, Bureau of Health Education, American Medical Association, will be the summarizer. The Desitin Chemical Company of Providence, R. I., will be host at a reception and cocktail hour, 5:30 p. m.

Society News.—The **Tri-State Medical Association of the Carolinas and Virginia** invites participation in the program of its 59th annual meeting at Charlotte, N. C., Feb. 20-21, 1956. Titles of papers should be sent to Dr. Roy B. McKnight, Professional Building, Charlotte, N. C.——At its 60th annual convention in Los Angeles, the **National Medical Association** presented its Distinguished Service award medal to Dr. W. Montague Cobb, Washington, D. C., for scientific endeavors in medical and other fields and the award for the General Practitioner of the Year to Dr. W. Burlin Humphrey of Los Angeles. Certificates and gold medals were awarded to about 200 physicians who had been practicing 40 years or more. The following officers were elected: Dr. August C. Terrence, Opelousas, La., president; Dr. Theodore R. M. Howard, Mound Bayou, Miss., president-elect; Drs. Vaughan C. Mason, New York, James S. Smith, Muncie, Ind., and Elias B. Thompson, Williamson, W. Va., vice-presidents; Dr. John T. Givens, Norfolk, Va., executive secretary; and Dr. Eugene T. Taylor, St. Louis, treasurer. The 1956 convention will be held in New York City.——The **National Multiple Sclerosis Society** has appointed as director of the medical and scientific department, Frederick L. Stone, Ph.D., assistant for professional services to the vice-chancellor, School of the Health Professions, University of Pittsburgh, and a member of the executive committee of the medical advisory board of the society. Dr. Stone's primary responsibility will be to develop expanded research and medical programs.

Meeting on Dermatology and Syphilology.—The American Academy of Dermatology and Syphilology will hold its 14th annual meeting Dec. 3-8 at the Palmer House, Chicago, under the presidency of Dr. Arthur C. Curtis, Ann Arbor, Mich. Special courses will be presented Saturday and Sunday on histopathology; mycology; x-ray and radium therapy; bacteriology and virology of the skin; application of research methods to dermatology; anatomy and embryology; special problems in dermatohistopathology. Noon informal discussion groups have been scheduled daily Sunday through Wednesday and afternoon informal discussion groups for Monday and Tuesday. The following round-table panels will be presented: Eczematous Eruptions of the Hands; Techniques in the Application of X-Ray and Radium; Common Dermatoses; Light-Sensitive Dermatoses and Porphyria; Medical Writing; Dermatologic Photography; Military Dermatology; Eczema of Infants and Children; Techniques in the Application of X-Ray and Radium; and Cutaneous Testing. The sessions will open Monday at 10:30 a. m. with special lectures on endocrinology in relation to dermatology (Dr. Francis E. Senear, Chicago, director). On Tuesday a special lecture, "Cause and Effect in Relation to Disease," will be presented at 8:30 p. m. by Dr. William Boyd, Toronto, Canada. Tuesday afternoon Dr. George C. Andrews, New York, will serve as chairman for a panel on the diagnosis and treatment of cutaneous malignancy, with Dr. John R. Freid, chief of the radioisotope service at Montefiore Hospital and Bronx Hospital, New York, as guest. An all-day clinical pathological conference is scheduled for Wednesday. The 16 symposiums will include an all-day symposium on pharmaceutical therapeutics Thursday. The first presentation at the symposium on cutaneous granulomas Tuesday morning will be "Tuberculosis of the Skin," the first John E. Rauschkolb Memorial Lecture, by Dr. J. J. Zoon, professor of dermatology, University of Utrecht, Holland. Cocktails at 6:30 p. m. will precede the annual banquet and entertainment Wednesday (formal dress optional). The next two annual meetings of the academy will be held Dec. 8-13, 1956, and Dec. 7-12, 1957, at the Palmer House.

Easter Seal Convention.—The annual convention of the National Society for Crippled Children and Adults will convene at the Palmer House, Chicago, Nov. 28-30. Dr. Leonard A. Scheele, surgeon general, U. S. Public Health Service, Washington, D. C., will be among the speakers at the opening session Monday, 9:30 a. m. At 11:30 a. m. the exposition on employment of the physically handicapped will have its grand opening. This exposition will feature on-the-job demonstrations of disabled employees. More than 75 firms located in various industrial areas of the United States will be among the exhibitors participating in this free exhibit, which will be sponsored by the society, the President's Committee on Employment of the Handicapped, and the Illinois Governor's Committee on Employment of the Physically Handicapped. Dr. Clinton L.

Compere and associates, Chicago, will participate in the seminar for physicians, physical therapists, and occupational therapists (Monday afternoon), "Techniques in Amputee Training," which will include a clinic demonstration of patients. The theme of the convention, "Conquering Crippling," will be elaborated in the presentation Tuesday, 9:30 a. m., of "The Role of the General Practitioner in Conquering Crippling" by Dr. John R. Fowler, Barre, Mass., president, American Academy of General Practice. Tuesday afternoon seminars will deal with speech rehabilitation and the social and emotional adjustment of the teenage crippled child. The Wednesday morning session will be opened at 9:30 a. m. with presentation of "New Resources for Conquering Crippling" by Mary Switzer, director, U. S. Office of Vocational Rehabilitation, Department of Health, Education, and Welfare, Washington, D. C., which will be followed by "Conquering Crippling As I See It" by Dr. Harold B. Boyd, associate professor of orthopedic surgery, University of Tennessee College of Medicine, Memphis, Tenn., and past-president, American Academy of Orthopaedic Surgeons. "The Compleat Person" by Dr. Francis J. Braceland, Hartford, Conn., president-elect, American Psychiatric Association, will precede discussion of "Conquering Crippling—Whose Responsibility?" for which Mr. Lawrence Spivak, Washington, D. C., and New York, producer of the television program, "Meet the Press," will serve as chairman.

CORRECTION

Cooley's Trait.—Throughout the letter from Israel entitled "Cooley's Anemia in Oriental Jews" in The Journal, Sept. 24, 1955, page 395, the words "Cooley's trait" should be substituted for "Cooley's anemia." Cooley's trait was described by Dreyfuss; its characteristics are given in the letter but are erroneously ascribed to Cooley's anemia.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

1957 Clinical Meeting, Philadelphia, Dec. 3-6.

National Medical Public Relations Conference, Hotel Statler, Boston, Nov. 28. Mr. Leo F. Brown, 535 N. Dearborn St., Chicago 10, Director.

American Academy of Dermatology and Syphilology, Palmer House, Chicago, Dec. 3-8. Dr. James R. Webster, 55 East Washington St., Chicago 2, Secretary.

American Academy of Obstetrics and Gynecology, Conrad Hilton Hotel, Chicago, Dec. 13. Dr. C. Paul Hodgkinson, 116 South Michigan Blvd., Chicago, Secretary.

American League Against Epilepsy, Roosevelt Hotel, New York, Dec. 8. Dr. Peter Kellaway, Baylor University College of Medicine, Houston 25, Tex., Secretary.

American Rheumatism Association, Interim Session, National Institutes of Health, Bethesda, Md., Dec. 9. Dr. Edward F. Hartung, 580 Park Ave., New York 21, Secretary.

Association for Research in Nervous and Mental Diseases, Hotel Roosevelt, New York, Dec. 9-10. Dr. Clarence C. Hare, 710 West 168th St., New York 32, Secretary.

Eastern Section, American Federation for Clinical Research, Hotel Warwick and College of Physician's Building, Philadelphia, Dec. 2-3. Dr. Charles R. Shuman, Temple Univ. Hospital, Broad and Ontario Sts., Philadelphia 40, Chairman.

Eastern Section, American Laryngological, Rhinological and Otological Society, Boston, Jan. 13. Dr. John A. Murtagh, Dartmouth College, Hanover, N. H., Vice President.

Los Angeles Midwinter Medical Convention, Biltmore Hotel, Los Angeles, Jan. 3-5. Dr. Paul D. Foster, 1925 Wilshire Blvd., Los Angeles 58, General Chairman.

Middle Section, American Laryngological, Rhinological and Otological Society, Netherland Plaza, Cincinnati, Jan. 16. Dr. William H. Craddock, 2328 Auburn Ave., Cincinnati 19, Vice President.

Medical Society Executives Conference, Parker House, Boston, Nov. 27. Mr. H. Martin Baker, 1102 South Hillside, Witchita 17, Kansas, Secretary.

New England Health Education Association, Boston, Dec. 2. Miss Wyntha Tompkins, Middlesex Health Association, Essex, Mass., Secretary.

Puerto Rico Medical Association, Santurce, Dec. 7-11. Dr. Luis R. Guzman-Lopez, Box 9111, Santurce, Secretary.

Radiological Society of North America, Palmer House, Chicago, Dec. 11-16. Dr. Donald S. Childs, 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

Regional Meetings, American College of Physicians:

- Detroit, Dec. 3. Dr. H. Marvin Pollard, 1313 East Ann St., Ann Arbor, Mich., Governor.
- Hot Springs, Ark., Dec. 3. Dr. A. A. Blair, 100 S. 14th St., Ft. Smith, Ark., Governor.
- Winston-Salem, N. C., Dec. 8. Dr. Elbert Persons, Duke Hospital, Durham, N. C., Governor.
- Shreveport, La., Jan. 14, Dr. M. D. Hargrove, 803 Jordan St., Shreveport, La., Governor.
- Philadelphia, Jan. 20. Dr. Thomas M. McMillan, 330 South 9th St., Philadelphia 7, Governor.

Sectional Meetings, American College of Surgeons:

- Jacksonville, Fla., Hotel George Washington, Jan. 16-18. Dr. Kenneth A. Morris, 2522 Oak St., Jacksonville 4, Fla., Chairman.

Southern Section, American Federation for Clinical Research, Jung Hotel, New Orleans, Jan. 20. Dr. John H. Moyer, 1200 M.D. Anderson Blvd., Houston, Tex., Secretary.

Southern Surgical Association, The Homestead, Hot Springs, Va., Dec. 6-8. Dr. George G. Finney, 2947 St. Paul St., Baltimore 18, Secretary.

Southern Thoracic Surgical Association, The Greenbrier, White Sulphur Springs, W. Va., Dec. 2-5. Dr. Hawley H. Seiler, 442 West Lafayette St., Tampa 6, Fla.

Western Section, American Laryngological, Rhinological and Otological Society, County Medical Society Bldg., San Francisco, Jan. 21. Dr. David D. DeWeese, 1216 S. W. Yamhill St., Portland, Ore., Vice President.

Western Surgical Association, Olympic Hotel, Seattle, Dec. 1-3. Dr. John T. Reynolds, 612 N. Michigan Blvd., Chicago 11, Secretary.

FOREIGN AND INTERNATIONAL

All India Medical Conference, Jaipur, India, Dec. 26-28. Dr. B. N. Consul, Association Bldg., S.M.S. Hospital Premises, Jaipur, India, Organizing Secretary.

Canadian Medical Association, Quebec, P. Q., Canada, June 10-14, 1956. Dr. Arthur D. Kelly, 150 St. George St., Toronto 5, Ont., Canada, Secretary.

Conference of International Union for Health Education of the Public, Rome, Italy, Apr. 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1er, France, Secretary-General.

Congress of International Anesthesia Research Society, Miami Beach, Fla., U.S.A., April 9-12, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Somerset, Boston, Mass., U.S.A., Aug. 27-Sept. 1, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, Sept. 12-15, 1956. Prof. Umberto Serafini, Instituto de Patologia Medica, Viale Morgagni, Florence, Italy, Secretary-General.

European Congress of Cardiology, Stockholm, Sweden, Sept. 10-14, 1956. Dr. Karl Erik Grewin, Sodersjukhuset, Stockholm, Sweden, General Secretary.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik, Hamburg-Eppendorf, Germany.

Inter-American Congress of Cardiology, Havana, Cuba, Nov. 4-10, 1956. For information address: Dr. Ramon Aixala, Apartado 2108, Havana, Cuba.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Congress Against Alcoholism, Istanbul, Turkey, Sept. 10-15, 1956. For information address: International contre l'Alcoolisme, Case Gare 49, Lausanne, Switzerland.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress of Blood Transfusion, Boston, Mass., U. S. A., Aug. 29-Sept. 2, 1956. Dr. J. Julliard, 57, Boulevard L'Auteuil, Boulonge-sur-Seine, France, Secretary General.

International Congress on Diseases of the Chest, Cologne, Germany, Aug. 19-23, 1956. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, U. S. A., Executive Director.

International Congress of Entomology, Montreal, Canada, Aug. 17-25, 1956. Mr. J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ont., Canada, Secretary.

International Congress of Gastroenterology, London, England, July 18-21, 1956. Mr. Hermon Taylor, London Hospital, White Chapel, London E.1, England, Honorable Secretary.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Human Genetics, Copenhagen, Denmark, Aug. 1-6, 1956. For information address: The University Institute for Human Genetics, Tagensvej 14, Copenhagen N, Denmark.

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Palmer House, Chicago, Illinois, U. S. A., Sept. 9-13, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Dr. Valente, 41 Avenue Verdi, Montecatini Terme, Italy, Secretary-General.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Physiopathology of Animal Reproduction and Artificial Insemination, Cambridge, England, June 25-29, 1956. For information address: Dr. Joseph Edwards, Production Division, Milk Marketing Board, Thames Ditton, Surrey, England.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for Physical Therapy, Hotel Statler, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International Genetics Symposium, Tokyo and Kyoto, Japan, Sept. 6-12, 1956. For information address: Secretary, International Genetics Symposium, Science Council of Japan, Ueno Park, Tokyo, Japan.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

Latin American Congress of Pathology, Mexico, D. F., Mexico, Dec. 11-17. For information address: Laboratorio de Anatomia Patologica, Instituto N. de Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F., Mexico.

Latin American Congress of Physical Medicine, San Juan, Puerto Rico and Curacao, N.W.I., Jan. 29-Feb. 8, 1956. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York 21, New York, U. S. A., Executive Director.

Medical Women's International Association, Extraordinary General Assembly, Burgenstock, Nidwalden, Switzerland, Sept. 21-23, 1956. Dr. Janet Aitken, 30a Acacia Road, London N.W. 1, England, Secretary.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P.O Box 672, Cairns, N.Q., Australia, Secretary.

Pan-American Academy of General Practice, San Juan, Puerto Rico and Curacao, N.W.I., Jan. 29-Feb. 8, 1956. Dr. Arturo Martinez, 54 East 72d St., New York 21, New York, U. S. A., Secretary.

Pan American Congress of Gastroenterology, Havana, Cuba, Jan. 20-27, 1956. For information address: Dr. Norberto M. Stapler, 1267 J. E. Uriburu, Buenos Aires, Argentine, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, San Juan, Puerto Rico, April 8-12, 1956. Dr. C. E. Munoz MacCormick, Apartado 9111, Santurce 29, Puerto Rico, Secretary General.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

World Medical Association, Havana, Cuba, Oct. 9-15, 1956. Dr. Louis H. Bauer, 345 East 46th St., New York 17, New York, U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

American Board of Dermatology and Syphilology. *Written.* Various centers, July 26. *Oral.* St. Louis, Oct. 12-15. Sec., Dr. B. M. Kesten, One Haven Ave, New York 32.

American Board of Internal Medicine: *Oral.* Chicago, Nov. 30-Dec. 1. *Subspecialties. Cardiovascular Disease.* Chicago, Nov. 30. The closing date for acceptance of application for gastroenterology was Feb. 1, and for cardiovascular disease the closing date was June 1. *Written.* Oct. 15, 1956. Final date for filing application is May 1. *Oral Examinations in 1956.* New Orleans, Feb. 7-10; Los Angeles, April 12-14; Chicago, June 7-9. Final date for filing application for these three oral examinations is Jan. 3. New York City, Sept. 21-25. Final date for filing application is April 1. Exec. Sec., Dr. William A. Werrell, 1 West Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* New Haven, November. Oral examinations given in Spring and Fall. Final date for filing application for the Spring examination was October 1; for the Fall examination April 1. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

American Board of Obstetrics and Gynecology: *Written Examination and submission of Case Reports. Part I.* Various locations in United States and Canada, and military centers outside of the Continental United States, Feb 3, 1956. Final date for filing application was Oct. 1. *Oral and Pathological Examinations. Part II.* Chicago, May 11-20, 1956 Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: *Written.* January 24-26, 1956. *Practical Examination.* San Francisco, June 18-21, St. Louis, Oct. 20-25. Applications for 1957 written examination must be filed before July 1. 1956. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

American Board of Orthopaedic Surgery: *Oral.* Jan. 26-27. Final date for filing application was Aug. 15. *Part I. Oral and written.* Various centers, April 1956. Final date for filing application is Nov. 30. Sec., Dr. Harold A. Sofield, 116 South Michigan Ave., Chicago 3.

American Board of Otolaryngology. *Oral.* Montreal, Canada, May 6-10. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

American Board of Pediatrics: *Oral.* Washington, D. C., Dec 2-4 Admin. Sec., Mrs. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Physical Medicine and Rehabilitation. *Parts I and II.* Chicago, June 16-17. Sec., Dr. Earl C. Elkins, 200 First St., S. W., Rochester, Minn.

American Board of Plastic Surgery. *Entire Examination.* Buffalo, May 13-15. Final date for filing case reports is Jan. 1. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

American Board of Preventive Medicine: *Certification in Public Health.* Kansas City, Mo., Nov. 10-12. Sec.-Treas., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore 5.

American Board of Psychiatry and Neurology: New York City, December, Philadelphia, April 16-18, 1956. Sec., Dr. David A. Boyd, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: Chicago, Dec. 4. Final date for filing applications for the fall examination was July 1. Candidates who will complete their training by Dec. 31 will be eligible to appear for this examination. Deadline for filing applications for the Spring 1956 examination is Jan. 1. Those candidates who will complete their training by June 30, will be eligible to appear at this examination. Sec., Dr. B. R. Kirklin, Kahler Hotel Bldg., Rochester, Minn.

American Board of Surgery: *Part I.* Centers throughout the United States, in Europe and in the Far East, March 28. Closing date for the March examination is December 1. *Part II.* New York City, Nov. 14-15; St. Louis, Dec. 12-13; New Orleans, Jan. 16-17; Los Angeles, Feb. 13-14; San Francisco, Feb. 16-17; Durham, March 12-13; Boston, May 14-15 and Philadelphia, June 4-5. Sec., Dr. John B. Flick, 255 S. Fifteenth St., Philadelphia 2.

Board of Thoracic Surgery. *Written.* February 1956. Closing date for filing application is Dec. 1. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2, Mich.

MAGAZINE-TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of THE JOURNAL. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Sunday, Dec. 4

NBC-TV, 10:30 p. m. EST. "March of Medicine," produced in cooperation with the American Medical Association, presents "Alcoholism—the Revolving Door," featuring case histories of alcoholics and remarks by Marvin A. Block, chairman of the A. M. A. Committee on Alcoholism.

Monday, Dec. 5

NBC-TV, 11 a. m. to 12 noon EST. "Medical and Health News with Howard Whitman," a segment of the "Home" show.

NBC-TV, 9 p. m. EST. "Medic," in a drama titled "Pray Judgment," shows how a post mortem after the death of a child proves that the death was accidental and not the result of negligence by the child's aunt.

ABC-TV, 9:30 p. m. EST. "Medical Horizons" visits Duke University School of Medicine, Durham, N. C., to report on work done so far with the problem of headache. Produced in cooperation with the American Medical Association.

MAGAZINES

Look, Nov. 29, 1955

"He Lost 125 Pounds in 7 Months," by Peter Van Slingerland

A family doctor helps a 21-year-old farm boy back to good health through a controlled, low-calorie diet. He once weighed 297 lb.

Look, Dec. 13, 1955

"War Among the Doctors," by Roland H. Berg

Covering what it terms the fight over fees between general practitioners and specialists, this article states that most general practitioners feel their prestige has been threatened by the dramatic, highly paid surgeon . . . that they have been frozen out of the operating room by hospitals that restrict surgery to board-certified specialists . . . that their share of the medical dollar is inequitable compared to the share of specialists. The article discusses the A. M. A.-sponsored Truman committee report in relation to these charges and adds psychologist Ernest Dichter's view that the battle is one of the physician's "inner conflict" between being a humanitarian and making a living.

Redbook, December, 1955

"The Healing of Sharon Webb," by Le Nell Webb

A mother tells of her small daughter's deformity (a congenital hip dislocation), of its eventual correction by orthopedic skill and patience, and of the return of her faith after the birth of another, normal child.

"How Dangerous Is TB Now?" by Alton L. Blakeslee

The public may be underestimating the prevalence of tuberculosis despite its decline as a leading cause of death, the author warns. He advises frequent medical checkups to discover early symptoms.

Woman's Home Companion, December, 1955

"Coming: A Long-Lasting Polio Vaccine," by J. D. Ratcliff

This report describes work being done to provide long-lasting protection against poliomyelitis by doctors in three research laboratories (New York, Ohio, and Alabama). It cites the advantages of a live virus vaccine over the comparatively short-term protection of the Salk vaccine. However, the new-type vaccine is still experimental; full-scale field tests are at least two years away.

Coronet, December, 1955

"A Brother's Gift of Life," by Al Hirshberg

A report of a successful kidney transplant on identical twins.

"Your Doctor Can Add 20 Years to Your Life," by Lawrence Galton

A new medical theory claims that old age and disease need not go hand in hand: A doctor advises how to educate your body to good health and additional years of pleasant living by taking care of six major areas.

Ladies' Home Journal, December, 1955

"What They've Been Learning About Breast Feeding," by Ruth and Edward Brecher

A summary of eight years of patient research on infant nursing provides some interesting answers to why some mothers can't nurse their babies. This surgeon and psychologist (a husband and wife team) compare the lactation cycle of women to that of cows; they offer advice on feeding and nipple care.

"Tell Me Doctor," by Henry B. Safford, M.D.

Dr. Safford discusses stress incontinence or weak bladder control, a complaint from which about 5.5% of all women suffer, he says.

Better Homes and Gardens, December, 1955

"New: A 'Harmless' Germ Killer!" by Donald G. Cooley

When dissolved in water, a new drug named Chlorpactin emits vapors that annihilate viruses, bacteria, fungi, spores and yeast—yet it is so harmless, the author says, that "you could drink it or take a bath in it."

Reader's Digest, December, 1955

"Fastest Man on Earth"

This condensation of a *Time* magazine (Sept. 12) article deals with the experiments of Dr. John Paul Stapp, who was his own guinea pig in determining the effects of speed and stress on the human body.

"How I Conquered Claustrophobia," by Ben Funk

A victim of what is termed the "most common of all phobias" relates how he overcame his fear of crowded and closed-in places. Condensed from the Denver *Post* (Oct. 30).

"They Learn to Survive—the Hard Way," by John G. Hubbell

The author recounts the tough nine days of survival training he underwent, along with 23 air crews, at Stead Air Force Base, Nevada.

"Exciting Promise of the Enzyme," by Harland Manchester

Condensed from *Journal of Lifetime Living* (Dec.), the article tells of research in the enzyme field that holds forth bright promise of aid in controlling malignant growth.

"Super-Aspirins Against Arthritis," by Paul de Kruif

New help for chronic arthritis and rheumatic disease sufferers is offered in reports of a new aspirin-hormone compound. Condensed from *Today's Health* (Dec.).

"The Miracle of Lourdes," by Ruth Cranston

The author of this recently published book reports some case histories of "the cures of Lourdes." (Excerpts from the book appeared in *McCall's* November issue, reported in this column Oct. 29.)

Collier's, Nov. 25, 1955

"The Manikin That 'Breathes' and 'Bleeds,'" by Edward W. Bird, M.D.

A color picture accompanies this feature about the 6-foot, 145-pound synthetic man used as a unique teaching aid for the armed forces. The first of 19 models planned, it took 18 months to build.

Saturday Evening Post, Nov. 19, 1955

"He Gave His Kidney to His Brother," by Virginia S. Herrick

A successful kidney transplant performed one year ago is a "medical first." This is a dramatic story of the 24-year-old Herrick twins, Ronald and Richard. Ronald gave a kidney to save his brother, a victim of nephritis.

GOVERNMENT SERVICES

AIR FORCE

Symposium on Civil Defense.—More than 60 teaching physicians from 16 medical institutions throughout the nation visited the Air Force School of Aviation Medicine in Texas in November to discuss the role of civilian medicine in defense against war and disaster. The schools participating are affiliates of the Medical Education for National Defense committee, appointed by the Association of American Medical Colleges to acquaint civilian faculties with problems of military medicine and the care of mass casualties in case of a nationwide catastrophe.

The medical educators heard the latest Air Force and Navy findings on such subjects as the effects of radiation, nuclear-powered aircraft, flight fatigue, decompression sickness, and the medical problems of space flight, and they accumulated teaching material to be incorporated into the curricula at their schools. The symposium was the first of an annual series to be held at different air bases. Dr. James R. Schofield, on extended leave from Baylor University's Medical School in Houston, is national coordinator of the MEND organization, which supplies teaching materials and policy guidance to the participating schools.

PUBLIC HEALTH SERVICE

Regular Corps Examinations for Medical Officers.—An examination for appointment of medical officers to the Regular Corps of the United States Public Health Service will be held throughout the country on March 20-22, 1956. Appointments provide opportunities for career service in clinical medicine, research, and public health. Entrance pay for an assistant surgeon with dependents is $6,017 per year; for senior assistant surgeon with dependents, $6,918. Qualified officers are promoted at regular intervals. Benefits other than promotions include periodic pay increases, 30 days annual leave, sick leave, medical care, disability retirement pay, regular retirement pay, which is three-fourths of annual basic pay at time of retirement, and other privileges.

Requirements for both ranks are U. S. citizenship, age of at least 21 years, and graduation from a recognized school of medicine. For the rank of assistant surgeon, at least seven years of collegiate and professional training and appropriate experience are needed. For senior assistant surgeon, an additional three years, for a total of at least 10 years of collegiate and professional training and appropriate experience, are required.

Entrance examinations will include an oral interview, physical examination, and comprehensive objective examinations in the professional field. Application forms may be obtained from the Chief, Division of Personnel, Public Health Service, Department of Health, Education, and Welfare, Washington 25, D. C. Completed application forms must be received in the division of personnel no later than Feb. 10, 1956.

SELECTIVE SERVICE SYSTEM

Service Prospects for Interns and Residents.—The National Advisory Committee to the Selective Service System reports that the needs of the military services for medical officers from July 1, 1956, to June 30, 1957, will be of such magnitude as to require active duty of all interns and residents who have not satisfied their military liability, and perhaps some liable physicians of priority 3 who are older and who may be established in practice. In view of this it will not be possible to support deferment for any current intern for residency training except those included in the Department of Defense's residency consideration program and perhaps some interns in most exceptional situations necessary to the national health, safety, or interest. Others will be called by Selective Service as needed throughout the year, unless they voluntarily obtain commissions. The President will probably direct the Selective Service System to issue calls for physicians to enter service during the course of the hospital year, possibly in October, 1956, and January and April, 1957.

More Physicians for the Army in February.—The Secretary of Defense has requested the Selective Service System to deliver 297 physicians for induction into the Army in February, 1956.

VETERANS ADMINISTRATION

Evaluation of Mental Care.—The Veterans Administration, which has one of the nation's largest psychiatric patient loads under a single medical management, will make an extensive evaluation of mental patient care to determine what types of treatment and hospitals best promote the improvement or recovery of its psychiatric patients and the relative costs. The study will continue for five years, with probably 15 of VA's 40 neuropsychiatric hospitals participating. Dr. Jesse F. Casey, director of psychiatry and neurology service, said the information to be sought is not now available from any source.

The VA study has three purposes: (1) to determine the relative effectiveness of different treatment techniques, (2) to determine the relative effectiveness of different hospital designs, staffing patterns, and program emphases, and (3) to permit valid estimates of the relative costs of the various elements in effective treatment programs.

Dr. Richard L. Jenkins, a psychiatrist, has been appointed project director with headquarters in VA's Mt. Alto Hospital, Washington, D. C. On the advisory committee are: Dr. Harvey J. Tompkins, director, Reiss Mental Health Pavilion of St. Vincent's Hospital, New York City; Dr. Paul H. Hoch, New York state commissioner of mental hygiene; Dr. George Kelley, professor of psychology, Ohio State University, Columbus; Dr. Frank M. Le Bar, professor of anthropology, Yale University, New Haven, Conn.; and Dr. Morton Kramer, chief, biometrics branch, National Institute of Health, Bethesda, Md.

The cooperating hospitals will collaborate in a general study of admissions for a two-year period. At the time of admission, each patient will be rated as to the type and severity of illness and on other factors important for a forecast of the probability of recovery. These patients will be examined at stated intervals during the following 24 months to determine what improvement they may show and whether they are able to go home. In the intervening periods, records will be kept of the treatment measures used with each patient.

Another phase of the project will be a follow-up of patients after discharge to determine what happens to them after they leave the hospitals. This information is expected to shed light on why patients are readmitted to VA hospitals.

Advisory Research Committee.—An advisory committee on research conducted within the Veterans Administration has been appointed. It includes representatives of specialists in internal medicine, surgery, neuropsychiatry, and tuberculosis. The chairman is Dr. Joseph M. Hayman, Boston; the other members are Drs. J. Burns Amberson, New York; Carol A. Moyer, St. Louis; W. Reece Berryhill, Chapel Hill, N. C.; and Harold G. Wolff, New York City. The committee will be concerned particularly with the professional and administrative aspects of research activities conducted within VA stations and with the research activities conducted by VA employees, and also with their interpretation to the lay public. This committee will maintain contact with the committee on veterans medical problems of the National Research Council that has advised VA on matters of research since it was established in 1945.

Two Fellowships Available.—Two fellowships are available at the Fort Miley Veterans Administration Hospital, 42nd Avenue and Clement Street, San Francisco. These fellowships are by appointment from Stanford University School of Medicine, and each bears a stipend of $300 per month. The appointments are for one year and will be renewable for an additional year. Applicants must be graduates of a class-A medical school, with preference given to candidates who have adequate previous training in clinical medicine. One is a fellowship in cardiology under the auspices of the San Mateo County Heart Association, beginning July 1, 1956; the other is in hematology, beginning on the same date under the auspices of the National Institutes of Health.

DEATHS

Mackie, Thomas Turlay ⊕ Westport, Conn.; born in Great Barrington, Mass., May 10, 1895; Columbia University College of Physicians and Surgeons, New York City, 1924; received doctor of tropical medicine and hygiene degree from London School of Hygiene and Tropical Medicine, London, England, in 1931, when he received its Duncan medal; from 1926 to 1929 assistant in medicine at his alma mater, where he was instructor from 1930 to 1933 and assistant clinical professor of medicine from 1938 to 1946; research associate in public health and preventive medicine from 1933 to 1935 and associate from 1935 to 1946 at Cornell University Medical College in New York City; professor of preventive medicine and head of the department from 1946 to 1951, serving as director of the Institute of Tropical Medicine, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C.; member, subcommittee on tropical diseases, National Research Council; special consultant of the epidemiology division of the U. S. Public Health Service; served during World War I; in 1942 member of the health committee, Office for Relief and Rehabilitation, Department of State, and member of the Army Board for Investigation of Influenza and Other Epidemic Diseases; from 1940 to 1942 consultant in tropical medicine to the U. S. Secretary of War; colonel in the Medical Corps, Army of the United States, during World War II, serving as executive officer of tropical and military medicine, and chief, division of parasitology, Army Medical School; received a medal from the U. S. Army Typhus Commission; in 1946 was awarded the Legion of Merit; consultant and branch section chief, tropical medicine, Veterans Administration, branch four area from 1946 to 1949, when he became area consultant in internal medicine and tropical diseases, Veterans Administration, Atlanta area; member of the American Association for the Advancement of Science, American Clinical and Climatological Association, New York Academy of Medicine, Royal Society of Tropical Medicine and Hygiene, American Gastroenterological Association, and Alpha Omega Alpha; fellow of the American College of Physicians; past-president of the American Society of Tropical Medicine, of which he was at one time councilor and secretary, and the American Foundation for Tropical Medicine, of which he was chairman of the board; served as treasurer of the American Academy of Tropical Medicine; specialist certified by the American Board of Internal Medicine; certified by the National Board of Medical Examiners; served as a consultant to various companies in the tropics and also to the government of Surinam; did extensive survey and field work on parasitic diseases in the Caribbean region; at various times on the staffs of the Norwalk (Conn.) Hospital, Stamford (Conn.) Hospital, Presbyterian, Fifth Avenue, Roosevelt, and Beekman Street hospitals, and the Infirmary for Women and Children in New York City; joint author of "A Manual of Tropical Medicine"; chairman of the Planning and Zoning Commission; died Oct. 5, aged 60, of pulmonary embolism.

Owen, Hubley Raborg, Phoenixville, Pa.; born in Pensacola, Fla., May 8, 1883; University of Pennsylvania Department of Medicine, Philadelphia, 1905; Jefferson Medical College of Philadelphia, 1915; member of the founders group of the American Board of Surgery; at one time instructor in surgery at Jefferson Medical College; emeritus clinical professor of surgery at the Woman's Medical College of Pennsylvania; an associate member of the American Medical Association; member of the American Association for the Surgery of Trauma; fellow of the American College of Surgeons; served during World War I; three times elected president of the International Association of Police and Fire Surgeons and Medical Directors of Civil Service Commissioners, which he helped found in 1921; formerly director of public health, chairman of the local defense council, and chief surgeon of the department of public safety; for 32 years police and fire department surgeon; director of the medical division of the board of education, a post held until 1950, when he became executive director and later president of the Philadelphia Heart Association; consulting surgeon, Philadelphia General Hospital; recently cited by the Health and Welfare Council for "outstanding contributions to health" in Philadelphia; in 1943 received the 20th annual Strittmatter award of the Philadelphia County Medical Society; died in Bryn Mawr (Pa.) Hospital Oct. 8, aged 72.

Bishop, Robert Hamilton Jr., Cleveland; born in 1879; Western Reserve University Medical Department, Cleveland, 1908; director of the joint committee for the advancement of medical education and research of the Western Reserve University School of Medicine and affiliated hospitals; past-president of the Ohio Public Health Association; member of the Ohio State Medical Association; served as president of the American College of Hospital Administrators; at one time city health commissioner; last May was awarded William Freeman Snow medal by the American Social Hygiene Association for distinguished service to humanity; a founder of the National Conference of Tuberculosis Workers and a past member of the board of directors of the National Tuberculosis Association; served as the first full-time executive secretary of the Anti-Tuberculosis League of Cleveland and Cuyahoga County and as president of the Ohio Tuberculosis and Health Association; for many years medical director of the University Hospitals; died in Novelty, Ohio, Sept. 29, aged 76, of arteriosclerosis.

Zavin, William Herman ⊕ Portland, Ore.; University of Oregon Medical School, Portland, 1938; certified by the National Board of Medical Examiners; specialist certified by the American Board of Pediatrics; fellow of the American Academy of Pediatrics; past-president of the Portland Academy of Pediatrics; clinical instructor in pediatrics at his alma mater; on the staffs of the Providence, Emanuel, and Good Samaritan hospitals and the Portland Sanitarium; at one time associated with the city bureau of health as director of the communicable diseases section; died in Kirkland, Wash., Oct. 5, aged 43.

Adams, Herman Galusha, Ramona, Calif.; Starling Medical College, Columbus, 1898; died Sept. 15, aged 97.

Blackwell, George Thomas, Gorman, Texas; Chicago College of Medicine and Surgery, 1908; served as mayor, and for many years a member of the school board; died June 13, aged 73, of coronary occlusion.

Bonar, Edward Twinem ⊕ Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1947; interned at the Mount Carmel Hospital in Columbus, where he served a residency; died Sept. 28, aged 32.

Carr, Charles Clay ⊕ Pennington Gap, Va.; Lincoln Memorial University Medical Department, Knoxville, Tenn., 1915; served during World War I; past-president of the Lee County Medical Society; past-president of the Pennington Gap Lions Club; died in the Harlan (Ky.) Hospital Sept. 29, aged 69, of urinary tract infection.

Case, Carl Judd ⊕ Los Gatos, Calif.; Western Reserve University Medical Department, Cleveland, 1910; member of the Ohio State Medical Association; died in the O'Connor Hospital, San Jose, July 8, aged 73, of duodenal ulcer.

Chambers, Merritt Goodrich, Pittsville, Md.; New York Homeopathic Medical College and Hospital, New York City, 1902; died Sept. 10, aged 78, of a heart attack.

Coyle, Bruce James, Windsor Locks, Conn.; Georgetown University School of Medicine, Washington, D. C., 1918; member of the Connecticut State Medical Society; died Aug. 5, aged 65, of coronary occlusion.

DeFuccio, Charles Pasquale ⊕ Jersey City, N. J.; University and Bellevue Hospital Medical College, New York City, 1914; specialist certified by the American Board of Pediatrics; member

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⊕ Indicates Member of the American Medical Association.

of the American Academy of Pediatrics; medical supervisor of schools in Jersey City; on the staff of the Jersey City Medical Center and St. Francis' Hospital; died Oct. 9, aged 66, of coronary thrombosis.

Dick, Noble ⊕ Santa Rosa, Calif.; Medical College of the State of South Carolina, Charleston, 1924; on the staff of the Santa Rosa Memorial Hospital; died Sept. 26, aged 63, of pulmonary fibrosis.

Dougan, Archie Longshore ⊕ Carmen, Okla.; Kansas City (Mo.) Medical College, 1897; died in Grand Junction, Colo., Sept. 27, aged 86, of pneumonia.

Edrington, Nicholas Kuntz, New Orleans; Vanderbilt University School of Medicine, Nashville, Tenn., 1916; fellow of the American College of Allergists and member of the Louisiana State Medical Society; past-president of the Louisiana Allergy Society; medical examiner for the Orleans Parish school board; for many years an examiner for the induction center of Selective Service; served during World War I; at one time physician for the Louisiana boxing commission; on the staff of the Baptist Hospital; died Sept. 22, aged 65.

Edwards, Francis Main ⊕ Cisco, Ill.; St. Louis College of Physicians and Surgeons, 1898; veteran of the Spanish-American and World Wars; for many years practiced in New Baden, where he was president of the Farmers State Bank; consulting surgeon at Centralia for Southern Railway; surgeon-in-chief emeritus at St. Mary's Hospital in Centralia, where he died Oct. 17, aged 79, of myocarditis and arteriosclerosis.

Firfer, Bourke ⊕ Chicago; University of Illinois College of Medicine, Chicago, 1938; interned at the Jackson Park Hospital; served a residency at the South Shore Hospital, where he was vice-president of the medical staff, and where he died Oct. 13, aged 42, of cerebral embolus and myocardial infarction.

Fischer, Nathaniel Arthur, Pittsburgh; University of Pittsburgh School of Medicine, 1908; clinical professor emeritus of otology at his alma mater; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; on the staffs of the Eye and Ear Hospital and St. Francis Hospital; died in the W. A. Foote Memorial Hospital, Jackson, Mich., July 28, aged 69, of coronary thrombosis and hypertension.

Flynn, James Lawrence ⊕ Natick, Mass.; Georgetown University School of Medicine, Washington, D. C., 1939; specialist certified by the American Board of Ophthalmology; on the staffs of the Boston City Hospital and St. Elizabeth's Hospital; died in the Haynes Memorial Hospital, Brighton, Sept. 26, aged 44, of bulbar poliomyelitis.

Fodder, William Lewis, Schenectady, N. Y.; Albany (N. Y.) Medical College, 1897; an associate member of the American Medical Association; fellow of the American College of Surgeons; honorary staff member at Ellis Hospital; past-president and secretary of the Schenectady County Medical Society; veteran of the Spanish-American War; died Sept. 6, aged 79, of acute bronchitis and arteriosclerosis.

Ford, Walter David ⊕ Dearborn, Mich.; Detroit College of Medicine, 1899; fellow of the American College of Physicians; served during World War I; at one time on the faculty of his alma mater; on the staff of the Harper Hospital, where he died Oct. 12, aged 76, of adenocarcinoma of the rectum with metastases.

Freydberg, Max, Mahopac, N. Y.; University of Odessa Faculty of Medicine, Russia, 1915; Howard University College of Medicine, Washington, D. C., 1924; member of the Medical Society of the State of New York; died July 5, aged 62, of coronary thrombosis and arteriosclerosis.

Gale, Clinton Fifield, Georgetown, N. Y.; University of Vermont College of Medicine, Burlington, 1905; member of the Medical Society of the State of New York; died in the Marcy (N. Y.) State Hospital July 30, aged 76, of arteriosclerotic heart disease.

Gerberich, Guy A., Lebanon, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1907; died Aug. 14, aged 72, of cerebral thrombosis.

Gladman, Everett Aldrich, Fulton, N. Y.; McGill University Faculty of Medicine, Montreal, Canada, 1898; medical consultant to the Oswego County Welfare Association; an associate member of the American Medical Association; member of the American Academy of General Practice; past-president of the Oswego County Medical Society; on the staff of the Albert Lindley Lee Memorial Hospital; died in the Syracuse (N. Y.) Memorial Hospital July 18, aged 80, of plasma cell myeloma.

Grimes, James Thomas ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1939; served during World War II; on the staffs of the Frankford and Nazareth hospitals; died Oct. 4, aged 41, of carcinoma of the pancreas.

Gummey, Frank Bird ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1888; an associate member of the American Medical Association; served during World War I; died Sept. 3, aged 88.

Gute, Edwin Bertram ⊕ Whitefish Bay, Wis.; Rush Medical College, Chicago, 1926; served during World War I and World War II; in 1916 served in the U. S. cavalry on the Mexican border; health commissioner in Whitefish Bay from 1927 to 1943; health commissioner of Fox Point since 1933 and of Bayside since 1953; member of the American Public Health Association and the American Association of School Physicians; died in Milwaukee July 15, aged 58, of cerebral thrombosis.

Hunter, Rush Quinn ⊕ Palestine, Texas; University of Texas School of Medicine, Galveston, 1922; fellow of the American College of Surgeons; chief of staff of the Memorial Hospital; died Sept. 19, aged 57, of coronary thrombosis.

Hutchins, Eugene Leslie, North New Portland, Maine; Medical School of Maine, Portland, 1915; member of the Maine Medical Association; on the staff of the Franklin County Memorial Hospital in Farmington; died Sept. 28, aged 66, of myocardial infarction.

Keim, William W., Davidsville, Pa.; Baltimore Medical College, 1905; past-president of the Somerset County Medical Society; served on the staff of the Memorial Hospital in Johnstown; died Aug. 7, aged 76, of chronic fibrous pancreatitis.

Klein, Benjamin D., New York City; Long Island College Hospital, Brooklyn, N. Y., 1923; died in St. Clare's Hospital Sept. 27, aged 58, of massive gastrointestinal hemorrhage and duodenal ulcer.

Latte, David, New York City; Julius-Maximilians-Universität Medizinische Fakultät, Würzburg, Bavaria, Germany, 1904; died in Saratoga Springs, N. Y., July 29, aged 77, of arteriosclerotic heart disease.

Lomnitz, Friedrich Walter ⊕ New York City; Kaiser-Wilhelms-Universität Medizinische Fakultät, Strassburg, Germany, 1918; died Oct. 11, aged 66, of a heart attack.

Lowder, Lillian Crockett, Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1898; died Sept. 19, aged 85, of cardiac decompensation.

MacCracken, S. Gordon, Ashland, Ore.; the Hahnemann Medical College and Hospital, Chicago, 1894; served during World War I; died Sept. 16, aged 85, of arteriosclerosis.

Merwin, Edgar Garfield ⊕ Highland, Ill.; Washington University School of Medicine, St. Louis, 1907; for many years served on the board of education and board of health; on the staff of St. Joseph's Hospital, where he died Sept. 30, aged 76, of uremia, hypertension, and arteriosclerosis.

Miller, Victor Davis ⊕ Hagerstown, Md.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; served as secretary of the Washington County Medical Society; member and past-president on the staff of the Washington County Hospital, where he died Sept. 21, aged 79, of acute coronary occlusion.

Myers, Harry Edwin ⊕ Columbus, Ohio; Starling Medical College, Columbus, 1907; member of the American Academy of General Practice; served during World War I; on the staffs of St. Ann's Hospital, Mercy Hospital, and the Mount Carmel Hospital, where he died Sept. 26, aged 75, of a heart attack.

Opitz, John Hoff ⊕ Chicago; Loyola University School of Medicine, Chicago, 1917; on the staffs of the German Deaconess and Southtown hospitals; died Oct. 16, aged 62, of heart disease.

Petty, Clarence Sibley ⊕ Guthrie, Okla.; Chicago Homeopathic Medical College, 1897; on the staffs of the Benedictine Heights Hospital; died Sept. 25, aged 83, of congestive heart disease.

Price, Byron Sprague, Port Chester, N. Y.; McGill University Faculty of Medicine, Montreal, Canada, 1895; was a member of the Radiological Society of North America; an associate member of the American Medical Association; died Sept. 17, aged 83, of arteriosclerosis.

Puris, Abram Martin, Park Ridge, Ill.; University of Nebraska College of Medicine, Omaha, 1919; specialist certified by the American Board of Pediatrics; for many years on the staff of the Children's Memorial Hospital in Chicago; died July 15, aged 60.

Rawson, Elwin Gilbert, Anamosa, Iowa; the Hahnemann Medical College and Hospital, Chicago, 1911; for many years health officer; died Sept. 16, aged 70, of coronary occlusion.

Robinson, Edward Jerome, Chicago; Chicago Medical College, 1920; died Oct. 2, aged 80.

Rosenberg, Harry ⊕ Chicago; Chicago Medical School, 1929; member of the American Academy of General Practice; on the staff of the Edgewater Hospital; died Sept. 18, aged 57, of cerebral hemorrhage.

Rosenblate, Adolph Jan ⊕ Chicago; University of St. Vladimira Faculty of Medicine, Kiev, Russia, 1928; specialist certified by the American Board of Radiology; member of the American College of Radiology; served on the staffs of the American, Englewood, and Evangelical hospitals; died in the Columbus Hospital Oct. 12, aged 61.

Roth, Norman, New York City; Long Island College Hospital, Brooklyn, N. Y., 1906; member of the Medical Society of the State of New York; died Aug. 9, aged 73, of coronary thrombosis.

Sandroni, Dino ⊕ New York City; Columbia University College of Physicians and Surgeons, New York City, 1921; member of the National Gastroenterological Association; on the staffs of the University and Roosevelt hospitals; died in the Memorial Hospital Aug. 24, aged 57, of leukemia.

Schipfer, Lloyd Albert ⊕ Chicago; State University of Iowa College of Medicine, Iowa City, 1907; specialist certified by the American Board of Otolaryngology; fellow of the American College of Surgeons; on the staff of the Wesley Memorial Hospital; died in the Evanston (Ill.) Hospital Oct. 15, aged 71, of thrombosis of the basilar artery and arteriosclerosis.

Sell, Oliver Martin ⊕ Pittsburgh; University of Pittsburgh School of Medicine, 1927; specialist certified by the American Board of Surgery; member of the American Society of Anesthesiologists; fellow of the American College of Surgeons; on the faculty of his alma mater; served during World War II; on the staffs of the Suburban Hospital in Bellevue and the Presbyterian and Woman's hospitals; died in Myrtle Beach, S. C., Sept. 22, aged 51, of coronary thrombosis.

Shabat, Louis Willard ⊕ Chicago; University of Illinois College of Medicine, Chicago, 1931; assistant professor of surgery at the Chicago Medical School; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; served during World War II; on the staffs of the Mount Sinai, Edgewater, and Cook County hospitals; died Oct. 21, aged 47.

Silverman, Harry Zeleck, Miami Beach, Fla.; Tufts College Medical School, Boston, 1924; an associate member of the American Medical Association; served during World Wars I and II; on the staff of Mount Sinai Hospital; died Oct. 3, aged 57, of coronary thrombosis.

Slavin, Francis James ⊕ Sunnyvale, Calif.; University of Cincinnati College of Medicine, 1944; served during World War II and the Korean war; died Sept. 22, aged 37.

Smith, French Nestor, Harlingen, Texas; Eclectic Medical Institute, Cincinnati, 1921; died July 10, aged 64, of cancer.

Smith, James Westphal Barnum ⊕ Albion, Neb.; University of Nebraska College of Medicine, Omaha, 1903; served as secretary-treasurer of the Boone County Medical Society; died Aug. 28, aged 78.

Stephens, George Henry, Syracuse, N. Y.; Syracuse University College of Medicine, 1903; an associate member of the American Medical Association; at one time fire and police surgeon; on the staffs of the University and People's hospitals; died in Thousand Island Park, N. Y., Aug. 3, aged 80, of carcinoma of the lung.

Stevens, Delos Meeker ⊕ Oskaloosa, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1912; past-president and secretary of the Jefferson County Medical Society; died in the Lawrence (Kan.) Memorial Hospital Sept. 2, aged 65, of cerebral hemorrhage.

Straw, Zatae Longsdorf ⊕ Manchester, N. H.; Woman's Medical College of Pennsylvania, Philadelphia, 1890; spent some time in a government hospital for Indians in Idaho before going to Manchester; served in the state legislature; in 1937 received the honorary degree of doctor of science from Dickinson College, Carlisle, Pa.; died Oct. 1, aged 89.

Tingdale, Carlyle ⊕ Hibbing, Minn.; University of Minnesota Medical School, Minneapolis, 1938; interned at the Minneapolis General Hospital; health officer and school physician; accidentally drowned in Lake Vermillion Aug. 12, aged 47.

Todd, Lawrence Newton, Berry, Ky.; University of Louisville (Ky.) Medical Department, 1912; member of the Kentucky State Medical Association; served in France during World War I; died July 28, aged 65, of coronary occlusion.

Torrey, John Paine ⊕ Bartlesville, Okla.; Harvard Medical School, Boston, 1896; veteran of the Spanish-American War and World War I; on the staff of the Washington County Memorial Hospital, where he died Oct. 1, aged 85, of Buerger's disease.

Trice, Ernest T., Richmond, Va.; University College of Medicine, Richmond, 1911; member of the Medical Society of Virginia; fellow of the American College of Surgeons; from 1937 to 1939 served on the state prison board; served during World War II; on the staffs of the Medical College of Virginia and Grace hospitals; died Sept. 7, aged 67, of metastasis from a Pancoast tumor of the left lung.

Ussher, Clarence D. ⊕ Santa Monica, Calif.; University Medical College of Kansas City, Mo., 1896; at one time a medical missionary in Turkey and Armenia; died Sept. 20, aged 85, of chronic endocarditis.

Weeks, Paul Richard ⊕ Denver; Indiana University School of Medicine, Indianapolis, 1927; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and American Radium Society; fellow of the American College of Radiology; served during World War II; on the staffs of the Presbyterian Hospital, St. Luke's Hospital, and St. Joseph Hospital, where he died Sept. 20, aged 53, of carcinoma of the pancreas.

Wheeling, William Stuart, Windber, Pa.; Jefferson Medical College of Philadelphia, 1893; an associate member of the American Medical Association; member of the American College of Chest Physicians, American Trudeau Society, and the International College of Surgeons; on the staff of the Windber Hospital; died Sept. 13, aged 82, of myocarditis.

Williams, Frederic Darbey, Valley Falls, R. I.; Columbia University College of Physicians and Surgeons, New York City, 1903; died in the Pawtucket (R. I.) Memorial Hospital Sept. 12, aged 77.

Woolley, Talmage Oliver, Orange, Texas; University of Texas School of Medicine, Galveston, 1911; member of the State Medical Association of Texas; died in the Lutcher Hospital Sept. 21, aged 71, of coronary thrombosis.

FOREIGN LETTERS

BRAZIL

Pulmonary Syphilis.—Dr. A. Guimarães Barbosa reported on a patient in whom the clinical findings, positive serologic tests for syphilis, and results of the therapeutic test led to a diagnosis of the gummatous form of pulmonary syphilis (*Rev. paulista de tisiol.* 16:93, 1955). Although acquired syphilis of the lung is regarded by many pathologists as rare, many cases have been reported by clinicians. There is no agreement about its incidence, but there is general agreement about the morbid anatomy seen in the fetus or newborn infant with this condition. In addition to the gummatous form, there is an interstitial pneumonic form. The physical findings are not typical in this form but are those of many other pulmonary diseases. The radiographic findings are likewise inconclusive. The clinical diagnosis is made by serologic tests, therapeutic tests, and by excluding other conditions.

Schistosomal Myelitis.—A fatal case of transverse myelitis of schistosomal origin was observed by Dr. Zacarias Maciel and co-workers of the medical school of the University of Recife. The patient was admitted to the hospital because of total loss of motor control in the lower extremities, incontinence of urine and feces, and a temperature of 100.4 F (38.0 C). Tendinous areflexia with muscular hypotonia and hypesthesia in the lower extremities and a bilateral Babinski sign were noted on examination. The patient died 10 days after admission. At autopsy, microscopic sections of the lumbar region of the spinal cord showed thromboses, hemorrhages, inflammatory reactions, and Schistosoma mansoni ova in direct relation to the lesions. Arteriolar lesions were characterized by necrosis, endarteritis, with edema and leukocytic infiltration, and periarteritis. The nervous tissue in the lumbar region showed severe myelitic disintegration throughout the white matter, ischemic degeneration of the neurons, one small area of gliosis, local destruction of myelin in the radicular branches, and, in one of these branches, the shells of Schistosoma ova.

ENGLAND

Lung Cancer, Polluted Air, and Smoking.—Stocks and Campbell have reported an investigation to evaluate the effects of tobacco smoking and air pollution by benzpyrene acting together on the men in rural North Wales and urban Liverpool (*Brit. M. J.* 2:923, 1955). The intention was to carry out a five year study, but the results so far obtained have been presented because they point strongly to measures that might help to reduce the incidence of pulmonary cancer. Since 1952 the authors have collected the environmental histories of a number of male residents in the two areas who were believed to be suffering from any form of malignant disease. Reports were also obtained of all deaths certified as due to cancer, and, if no history taken during life was available, a relative was questioned. Supplementary information on the basis of diagnosis, duration of symptoms, and the patients' smoking habits were obtained. About 12,000 histories were also recorded of patients without cancer. Careful analyses of air samples from the areas were made and studied for 3:4-benzpyrene, 1:12-benzperylene, pyrene, fluoranthene, anthracene, and sulfur dioxide. From a previous finding that 4 mcg. of 3:4-benzpyrene can be extracted from the smoke of 500 cigarettes, together with the amount of this substance in air as determined by the same technique, it was possible to estimate what would be the total intake of benzpyrene per year by men of different smoking habits living in rural and urban areas.

The death rates from cancer of the lung and bronchus were calculated among men, aged 45 to 74 years, of different smoking habits, as were the death rates related to the probable amounts of benzpyrene and other carcinogens inhaled from the air. The annual male mortality from lung cancer in the Welsh rural areas increased steadily from 14 per 100,000 for nonsmokers to 363 per 100,000 for heavy smokers (based on a consumption of more than 250 cigarettes a week for 10 years). The corresponding mortality for pipe smokers, irrespective of the amount smoked, was 41 per 100,000. Similar figures were obtained for mixed urban and rural areas, but, in Liverpool, with its greater atmospheric pollution, the mortality rate of nonsmokers was 131 per 100,000 and up to 394 per 100,000 for smokers. Actually, the death rate increased proportionately to the number of cigarettes smoked per week; pipe smokers as a group ranked with cigarette smokers of about 25 a week. The urban rates exceeded the rural rates in every smoking category. The absolute urban excess of deaths was much the same in each smoking group, suggesting that an atmospheric factor is added to the effects of smoking. The authors estimate that 50% of the deaths of Liverpool men from lung cancer arise from cigarette smoking and about 75% of the remaining half are due to a factor only slightly present in the rural areas. The concentration of smoke and 3:4-benzpyrene in Liverpool air was about 10 times as great as that of the rural districts. Benzpyrene is believed to be the carcinogen responsible for the association of lung cancer with both smoking and living in towns.

First Seven Years of National Health Service.—The John Tate Memorial Lecture was delivered before the Middlesex County Medical Society by Dr. T. R. Hill who discussed the lessons learned in the National Health Service since it began seven years ago. He said that the cost of the service was now so high that it had become almost a political issue. The cost was one of the most colossal miscalculations ever made. As medicine advances, costs in publicly organized health service must necessarily increase. The increasing age of the population was not adequately considered, but, because of it, the service will be called on increasingly to deal with the degenerative diseases of later life. Yet, in 1948, the main theme was the economy that would result from the increase in the working strength of a people for whom medical advice and treatment would be freely available. The problem now is how to control rising costs and reduce economic damage to the country. Some form of highly competent central control is necessary. The spread of consultant services all over the country, instead of localization in a few large towns, is of great benefit to the patient, and young physicians are in a better position financially than were their predecessors. Insufficient attention, however, was paid to the general practitioners, many of whom complain that they have lost status and are only routine suppliers of certificates and prescriptions. At present, a physician is not fit to enter general practice on graduation from a medical school. The qualified physician of tomorrow must be more highly trained than he is today. Greater care in selecting medical students should be exercised to insure more competent general practitioners. A raising of the standard of qualification is essential. The general practitioner should have hospital experience under skilled supervision. Too many patients are sent to the hospital, both as inpatients and outpatients. A larger number could be treated at home and hospital beds released for the more needy. Specialists spend too much time seeing outpatients who should not have been sent to them. More money should be spent on home treatment.

Dr. Hill could not understand why the government made so much fuss about overprescribing in general practice, which was a mere bagatelle in comparison with hospital costs (about one billion dollars per annum). Constructive hospital planning has been grossly inadequate. The Central Health Services Council, set up to advise the Ministry of Health, has failed because it was not representative of the medical profession. The profession, not a government department, should choose its own advisory body. There is too great a concentration of power in persons and groups. The central government has given too much responsibility to regional boards without considering the part the profession could itself play.

The items in these letters are contributed by regular correspondents in the various foreign countries.

Hypophysectomy for Diabetes.—In an attempt to arrest the progress of diabetic retinal, vascular, and renal complications, Professor Olivecrona and his co-workers have carried out hypophysectomy on 20 diabetic patients between the ages of 20 and 23 (*Brit. M. J.* 2:752, 1955). All patients had diabetic retinopathy, elevated blood pressure, and proteinuria. The purpose of the operation was to eliminate those anterior pituitary factors that animal experiments have shown possess a diabetogenic action, as it was thought that these hormones might be connected with the development or progression of diabetic complications. Reports are available on 19 of the patients. Two died within the first postoperative week, and two died within a month, one from thrombosis in the leg and one in an epileptic state presumably caused by hypoglycemia. One patient died 6 months later from progressive mental deterioration associated with arteriosclerosis and not the operation; one 15 months after operation from hypertensive crisis; and one 19 months after operation from renal insufficiency. After the initial postoperative period the patients were given protamine zinc insulin, a diet of 1,400 to 2,000 calories daily, thyroxin, estrogens, or androgens, and desoxycorticosterone, or corticotropin. In the 13 surviving patients the operation was followed by a fall in blood pressure and a decrease in cardiac volume. Where calcification of the peripheral vessels existed before operation of the patients, blood pressure and cardiac volume were not affected, but no calcification occurred in other patients. A definite decrease in proteinuria and in the glomerular filtration rate was achieved, but the effective renal plasma flow was unchanged. This was believed to indicate a favorable effect on the renal circulation. No signs of progression of the renal disease were observed. The renal capacity improved in some patients, and the retinal changes did not progress. Because of the limited period of observation (3 to 43 months) and the small number of patients, definite conclusions could not be reached. However, the high mortality makes the operation a desperate measure. Success is by no means certain, although at the moment no other treatment to arrest complications has anything to offer. Some form of irradiation might be a safer alternative.

Herniorrhaphy as an Outpatient Procedure.—Early ambulation after operations was advocated at the end of the last century and has generally gained acceptance. Impressed with the advantage of early ambulation and the long hospital waiting lists —there are currently 447,000 patients awaiting admission for 76,000 beds in England and Wales—Dr. E. Farquharson decided to perform inguinal herniorrhaphy as an outpatient procedure. Most of his patients had been placed at the end of surgical waiting lists because it was argued that their operation was not urgent. He presented his results in 485 patients whose inguinal hernias were treated in this way (*Lancet* 2:517, 1955). Had they been admitted in the usual way, they would have filled a 28-bed ward continuously for six months at a cost of $21,000 to $28,000. The operations were carried out under local analgesia without an anesthetist. The patients were little disturbed by the operation. They walked out of the operating room, dressed, and walked to the cars or ambulances taking them home, the aim being to get them back to their own beds before the local analgesia wore off. They were told to spend the next three or four days in bed, with toilet privileges granted, and to return to the hospital in eight or nine days for removal of stitches. Dr. Farquharson uses this procedure only in patients with satisfactory home conditions and provided that the hernia is neither large nor irreducible. The ages of the patients ranged from 12 to 83 years. The best results, judged by freedom from complications, were in the elderly, who prefer the comforts of home. Retention of urine was not noted in any of these patients. The cooperation of the patient's physician was obtained, and he visited in the first few days the patient was home. Arrangements were made for immediate admission in the event of any complications; only 11 of the 485 needed admission for this reason. This was reduced to 1 in the last 200 patients. A follow-up examination suggests that the results are as good as with orthodox hospitalization.

Osler Memorial at Oxford.—On Oct. 8, Prof. G. W. Pickering unveiled a memorial plaque on the outer wall of a house at Oxford in Norham Gardens, which Sir William Osler occupied during his 12 years as regius professor of medicine and in which he died in 1919. Mr. V. Green-Armitage, president of the Osler Club, which provided the plaque, said that he was one of the remaining few who had known Osler and that he had been presented with a prize 50 years ago by Osler. The Osler Club was founded in the early 1920's by a small band of his students. Osler came to Oxford from Johns Hopkins just 50 years ago. The house in which he lived was bequeathed to the university by Lady Osler in 1928 as an official residence for regius professors, but owing to its large size—it had 14 bedrooms—it was not used for a time. The problem was solved by converting it into apartments, one of which would be available to future regius professors. Professor Pickering said that Osler did his best work and researches on diseases of the spleen, blood, and heart in North America. He was successively professor at McGill, the University of Pennsylvania, and Johns Hopkins. Probably no other institution in the world has had such an effect on medical education as Johns Hopkins Medical School. Osler was 56 years old when he came to Oxford. No other personality in the medical world during the present century has had his memory perpetuated in Britain in the same way as Osler. He was a great physician, a great teacher, and a great scholar. It is because he always had time for his students and was a student at heart that the Osler tradition has persisted.

National Health Service in Northern Ireland.—The Northern Ireland General Health Services Board has issued its report for the period 1954-1955 (Northern Ireland General Health Services Board, Seventh Annual Report Year 1954-1955, Belfast, Ireland, Her Majesty's Stat. Off.). The number of persons under treatment by general practitioners in the National Health Service has increased from 1,362,745 to 1,369,115 (98.96% to 99.23% of the total population); the average number per physician decreased from 1,906 to 1,883, mainly because of the increase in the number of physicians in large practices; the number of medical partnerships increased from 122 to 135; and the number of physicians in partnership practice increased from 255 to 282. The medical adviser said that he had found the general standard of accommodation and equipment in physicians' offices to be satisfactory and that many physicians had made improvements. During the year complaints against six doctors were investigated, but only three were substantiated. Twenty-two complaints were dismissed without investigation. The number of patients changing their doctors for reasons other than change of address of physician or patient rose from 1,604 to 20,405.

Influenza in the United States and Great Britain.—Observations on the epidemiology of influenza in the United States and Great Britain have been made by Drs. Davenport, Hennessy, and Francis of the University of Michigan in collaboration with Prof. Stuart Harris of the University of Sheffield. Comparison of antibody levels observed with prototype strains of influenza viruses in serums collected from persons in Sheffield and Michigan showed that similar shifts of dominance of the antigens that comprise group A influenza viruses occurred in both countries at the same time. Levels of antibody to type A strains were much lower in persons in Sheffield. This may help to explain the higher incidence of influenza in Great Britain than in the United States. Since 1932 the annual case fatality rates from influenza in Great Britain have been consistently greater than in the United States. In 1951 there was a severe epidemic in Great Britain but only a mild one in the United States.

Compulsory Hospitalization for Tuberculosis.—The magistrates of Haverfordwest, Wales, have ordered the compulsory hospitalization of a laborer with four children who had not worked for some time and who had pulmonary tuberculosis. A few weeks after this laborer had been admitted to hospital, he had left against medical advice and returned home. Although he was a source of infection, he used public transportation. He refused to return to hospital despite urging by his physician, the district nurse, county health officer, and chest clinic physician. Under the Public Health Act, 1936, the magistrates ordered his removal to the hospital for three months. Although this is the maximum period of detention allowed, renewal of this period can be ordered subsequently if necessary. Although the Public Health Act has been in effect for nearly 20 years, it is seldom invoked.

Harmful Effects of Exhaust Fumes.—Experts from the poison gas defense station at Porton are collaborating with a panel of investigators appointed by the Medical Research Council to examine the toxic and possible carcinogenetic effect of exhaust fumes from automobiles, trucks, and busses. These fumes may be responsible for the increase in lung cancer, bronchitis, and certain nerve diseases. Benzpyrene has already been found by Dr. A. Lindsey in the deposit from diesel exhaust pipes, and detectable amounts of lead, derived from the tetraethyl lead put in gasoline to stop knocking, have been found in the air. Dr. E. Wilkins of Greenwich is measuring the amount of carbon monoxide derived from gasoline and diesel-driven engines in London streets. Dangerously high amounts have been found in Blackwall Tunnel, which passes under the Thames in East London.

Tuberculosis Due to Resistant Organisms.—McMurdoch and Grant reported on a patient with pulmonary tuberculosis from whom organisms resistant to streptomycin and isoniazid were isolated, although he had received no previous chemotherapy with either drug (*Lancet* 2:587, 1955). The 20-year-old patient had a sister who had been treated with *p*-aminosalicylic acid alone, streptomycin alone, and isoniazid alone. Nine sputum specimens were all positive for Mycobacterium tuberculosis on culture, and all showed the bacilli to be resistant to streptomycin and isoniazid. The patient was therefore given 2 gm. of viomycin twice weekly and 4 gm. of oxytetracycline daily for two months, when the sputum became negative.

Radioactive Cesium.—Liverpool Radium Institute has received authority from the Regional Hospitals Board to treat patients with radioactive cesium, a by-product of atomic fission. The new therapeutic unit will cost $28,000. The extraction of radioactive cesium is carried out at the atomic energy factory at Windscale. The cesium capsules have an activity of 1 kg. of radium, that is, 1,000 curies. The initial production rate will be one or two capsules a month. The United States is the only other country making radioactive cesium on this scale.

James Parkinson.—On Sept. 17, a memorial plaque to James Parkinson, author of "Essay on the Shaking Palsy," was unveiled in the church of St. Leonard's, Shoreditch, London. Parkinson was also known for his work on political and social reform and on geology. He had the ability to simplify abstract ideas and present them in plain words. Politically he was a Socialist, which is not surprising, as he worked in the slums. The plaque replaces Parkinson's tombstone, which was destroyed in the bombing of London.

Magnetic Call System.—At St. Thomas's Hospital, London, a magnetic call system for contacting resident medical staff is being installed. By this system, which it is believed St. Thomas's is the first hospital to introduce, it is possible to contact a physician in any part of the hospital through signals on a small wireless receiver that is carried in the breast pocket.

FINLAND

Drug Addiction in Finland.—At a meeting of Scandinavian pharmacologists in Helsinki, Professor Möller of Copenhagen, Denmark, stated that, in relation to drug addiction, the term euphomania is preferable to the term narcomania as the former embraces drugs other than narcotics. It covers, for example, the amphetamine group. It is doubtful, however, if either of these terms will altogether replace the term drug addiction. Dr. A. Huhtala, on the staff of a prison in Helsinki, said that in 1939 tablets containing heroin were issued by the Army Medical Service liberally and without strict precautions being taken to prevent abuses. This led to the creation of a number of drug addicts whose histories may be found in hospital and police records. Since World War II there has been a marked decline in the consumption of both heroin and morphine, but Finland's consumption of heroin is still many times greater than that of Denmark. There are about 200 drug addicts in Helsinki and 100 more in the rest of Finland. About one-third to one-quarter of these are women, and about 20 physicians and the same number of nurses and druggists are addicts. In Helsinki several drug addicts have joined forces in order to help each other in securing the drugs they need. There has been a curious shift in the preference shown by addicts for one drug after another. Many begin with heroin, switch to morphine, and end with methadone. At present, methadone has almost completely replaced both heroin and morphine. A morphine or heroin addict can achieve complete satisfaction by switching to methadone, but a chronic methadone addict is uncomfortable if he switches to morphine, even in small doses. These drugs are now almost exclusively taken intravenously, and, when large doses of methadone are given subcutaneously, troublesome sores with sinuses in situ are apt to appear. Among the more than 50 drug addicts examined by Huhtala since April, 1953, there was only one morphine addict—a woman; all the rest were methadone addicts. The most characteristic symptom of methadone addiction is complete sleeplessness. Drug addiction is no longer a serious social problem in Finland, with the possible exception of Helsinki, in one of whose prisons 98 addicts have been treated between 1948 and 1954. Present legislation makes no provision for the compulsory supervision and treatment of drug addicts as such. Legislation against vagrancy may in some cases be invoked in dealing with addicts who may also fall foul of the law by forging medical certificates. There appears to be no serious smuggling of drugs into Finland.

FRANCE

Delirium Tremens.—At a meeting of the Medical Society of Paris Hospitals on June 17, A. Ravina and his co-workers stated that of 2,237 men admitted to the general medical service, 1,500 were alcoholics and that 124 of 300 who came to autopsy had alcoholic cirrhosis. The authors treated 140 patients with delirium tremens. A diet deficient in proteins and fats was a contributing factor. In 10 patients the onset followed a pulmonary infection; in 4 it followed trauma; in 8 it followed sudden abstinence from alcohol; and in 14 no precipitating factor could be found. The prognosis is poor in those who have elevation of temperature, tachycardia, or bradycardia and in patients over 60 years of age in whom there is a drop in arterial pressure. A prothrombin rate below 90% without any other humoral modifications was observed in many of these patients. The authors recommended giving 50 mg. of chlorpromazine two or three times in 24 hours, 10 mg. of strychnine by injection twice in 24 hours, and 10 to 20 cc. of 3% alcohol intravenously. They avoid barbiturates but give alcohol and Phenergan instead. Of their 40 patients treated in this manner, 38 recovered. If there is evidence of cerebral edema, magnesium sulfate and the adrenocortical hormones are given.

Heparin for Cold Abscesses.—In the *Official Bulletin of the Medical Society of Physicians* for June, 1954, Weil and Murat reported that they had injected 50 mg. of pure heparin into a cold abscess. This prevents the caseous liquefaction of the tissues that is provoked by proteolytic enzymes and also the coagulation of the serous exudate. Healing occurs in 15 to 20 days after several injections. The results are better if isoniazid and streptomycin are also used. The heparin permits the antibiotics to penetrate into the center of the abscess even when the abscess is large.

Oxytetracycline for Rheumatic Fever.—J. Billiottet and his coworkers treated 54 patients with rheumatic fever with intravenous perfusions of 300 to 750 mg. of oxytetracycline daily. In children and in serious cases, they have also given cortisone. The results were presented to the Medical Society of Paris Hospitals on June 24. One patient so treated had cardiac complications. Of the 32 patients followed for at least two years, recurrences were observed in only 4.

ITALY

Problems of Oncology.—At the May meeting of the Lombardy Society of Medical and Biological Sciences in Milan, Professor Natale of the Milan Tumor Institute said that of 71 patients in whom hysteroadnexectomies were performed according to Wertheim's method with systematic lymphadenectomy, lymphatic metastases were found in 17% of those in whom the disease was in the first stage and in 33.3% of those in whom the disease was in the second stage. They were observed, however, only in those in whom the operation was performed two months after the completion of radium therapy and never in those who had not received such therapy. He questions, therefore, whether radium therapy should be advised for women with uterine cancer in early stages. Professor Grattarola of the Cancer Institute of Milan discussed the persistence of the ovarian activity after radium therapy for carcinoma of the uterine cervix. By giving the patients treated with radium appropriate doses of gonadotrophins, he caused persistent vasomotor phenomena to disappear and produced a eutrophic change in the vaginal epithelium and a follicular proliferation, followed by luteinization, in the ovary.

Dr. Bianco, who is also from the Cancer Institute, reported on eight patients with theca cell tumor, which in two was associated with cancer of the endometrium. He emphasized the possibility of a histological differential diagnosis of these tumors from fibromas without histochemical investigations. The nuclei of the cells of these tumors are thicker and bigger and have nucleoli that are more voluminous and more evident than is the case in the nuclei of the cells of fibromas. Professor Sirtori said that the cytological search for neoplastic elements of bronchial origin gives a greater percentage of correct diagnoses when the investigation is made on material secured by expectoration than on that obtained by aspiration of the bronchi. In his studies on the sputum of 36 patients with cancer of the lung, the cytological examination gave positive results in 32 instances, whereas in studies on the material aspirated from the bronchi of 49 patients with cancer of the lung, the cytological examination gave positive results in only 34. The main disadvantages to the use of material secured by bronchial aspiration are that the bronchoscope may not be inserted into the bronchus affected by the tumor and that bronchoscopy may be performed after the tumor cells that were present in the bronchial lumen have been discharged by the patient. On the other hand, all the tumor cells that scale from the neoplasm are gathered and preserved in the sputum and can easily be detected, even if the material is collected on two or three consecutive mornings, as long as it is placed directly into a container with denatured alcohol and if, with this material, histological specimens in paraffin are prepared.

Law of the Heart.—At the June meeting of the Filippo Pacini Medical Academy of Pistoia, Professor Maestrini of Arezzo said that in 1914 he defined the law of the heart as follows: "The heart is capable of performing a greater amount of work when its fiber is lengthened." The new diagnostic means such as cardiac catheterization, angiocardiography, kymography, and the new techniques for operations on the lung and the heart indicate that the heart follows this law any time it has to perform a greater amount of work. In other words, whenever the heart meets with propulsive difficulties, it increases its systolic residuum, becomes dilated, and becomes capable, by means of this dilatation, of increasing its systolic energy and of overcoming, at least in part, the obstacles that block the free passage of the blood. In the clinical field the law of the heart has helped to identify a new means of cardiac compensation (dilatory compensation) and to clarify in the simplest and easiest of ways the origin of cardiac hypertrophy.

SWEDEN

BCG Vaccination.—Since the voluntary BCG vaccination of school children in Stockholm was started in 1943, about 50,000 have been so treated. In 1941 there were 23 deaths from tuberculosis among Stockholm's children, aged 0-15, whereas there was not one such death in the same age group in 1952. In the same period tuberculosis morbidity among school children dropped from 3.9 to 0.7 per 1,000. Reviewing these and other findings in the quarterly journal of the Swedish National Association against Tuberculosis, Dr. Herbert Enell gives BCG vaccination some of the credit for these figures in view of the fact that a comparison of tuberculosis morbidity among the vaccinated and nonvaccinated is greatly in favor of the former. Thus, of 3,112 children successfully vaccinated, only 7 developed tuberculosis, and then always in a mild form (a rate of only 0.5 to 1 per 1,000 yearly), whereas among 843 not vaccinated with BCG, 328 developed tuberculosis (a rate of 10 to 40 per 1,000 yearly).

Grouping the school childrens' homes in three different social classes, Enell concluded that the parents' decision for or against vaccination was not influenced by their position in the social scale. With regard to the frequency with which BCG vaccination should be repeated, he has found that 91.6% of the children vaccinated at the ages of 7 and 8 were still tuberculin-positive nine years later. He suggests that this vaccination be given at birth, on entering school or leaving school, and on commencing military service.

In *Svenska läkartidningen* for Sept. 9, 1955, Dr. Erik Jacobsson compared subcutaneous and intracutaneous injections of BCG. Giving the same preparation of BCG by subcutaneous injection in 382 and by intracutaneous injection in 278 subjects, he found that the incidence of necroses at the site of the injection was much greater after the subcutaneous than after the intracutaneous injections. Subsequent testing of both groups with tuberculin showed little difference in the reactions to it.

Appendectomy at Gynecologic Operations.—The routine practice of removing the appendix in the course of gynecologic operations was shown to be fully justified by an investigation of 523 gynecologic operations reported by Angervall and Hesselsjö in *Nordisk medicin* for July 21, 1955. The authors excluded from their study patients in whom there were clinical signs of appendicitis at the time of the gynecologic operation. The removed appendixes were subjected to Weigert-Hansen staining, supplemented in most cases by hematoxylin-eosin staining for the determination of eosinophilia. Pathological changes were found in 60%. In 38 cases (7.3%) histological changes indicative of acute appendicitis were found; the largest pathological group consisted of 117 cases (22.4%) showing fibrous obliteration of the lumen of the appendix; in 24 cases (4.3%) eggs of Enterobius vermicularis were found in the lumen of the appendix without any concomitant sign of appendicitis; in the 3 cases in which the appendix was found to be the seat of cancer, the primary new growth was situated in the uterus or ovary; and in one case there were tuberculous changes in the appendix. As the appendectomy had no deleterious effect on the postoperative course of any of these patients, this investigation gives full support to the practice of removing the appendix whenever a surgeon finds it convenient.

Medical Jubilee.—Sweden created a medical service in 1688, and its members were required not only to act as general practitioners but also as health officers with administrative responsibilities. In this dual capacity many a physician had occasion to complain that the state was a niggardly employer. After nearly two centuries of experience with the state as an employer, the members of this service banded together in July, 1880, to form an association to further the material interests of its members. In August this association celebrated the 75th anniversary of its founding. At present, there are about 350 appointments in this service, with a senior member for each county. The senior member is responsible for the health of his county and supervises the activities of his subordinates and those of the pharmacists in his district. Recruiting for this service has encountered difficulties due in part to the rival offers of other services. The physician who becomes a health officer in the far north of Sweden may not be in so enviable a position as his colleague who works in a hospital with a well-equipped laboratory.

URUGUAY

Poliomyelitis.—At a meeting of the National Academy of Medicine, Perez and his co-workers reported studies of serum from subjects aged 8 months to 20 years. They found that 95% of subjects examined had antibodies against at least one type of poliomyelitis virus. At the age of 4 years, 72% of the urban population was found to have antibodies against at least one type of virus. Natural immunity is developed earlier and more completely in those living in the country than in those living in the city. The type 3 virus is most prevalent in Uruguay. Among the urban children, those visiting the country in the summer develop a higher immunity than those visiting the seaside.

CORRESPONDENCE

MEDICOLEGAL OFFICE

To the Editor:—From a study of case material passing through the coroner's office of the county and city of San Francisco, Dr. Turkel in THE JOURNAL, Aug. 27, 1955, page 1485, concluded that "the ultimate in scientific accuracy and in the discharge of responsibility to the public" by the office of coroner or medical examiner requires that office to perform autopsies in between 23 and 25% of all deaths occurring in its jurisdiction. By so doing, an official medicolegal autopsy would be performed in every death known or suspected to have resulted from violence, as well as in every death that has occurred unexpectedly from unexplained causes. It would undoubtedly be desirable to secure the kind of factual evidence in all deaths from unexplained or presumably violent causes that can only be obtained by autopsy. For that matter, it would be desirable from the standpoint of preventive medicine, medical research, and medical education to have such information about all deaths, regardless of the clinical impressions of their causation. In some jurisdictions, such as the city and county of San Francisco, public policy apparently condones by statute and supports by the allocation of public funds the performance of compulsory autopsies in virtually all deaths due to violent or unknown causes. Not all cities and counties are so enlightened and prosperous, nor do all cities and counties have a sufficient number of medicolegally trained pathologists to carry this large volume of medicolegal autopsies. In these latter communities, and they probably constitute a substantial portion of the total in the United States, it is necessary to take steps to achieve a reasonably satisfactory improvement rather than "the ultimate" in this branch of government. It is believed by many experienced medicolegal pathologists that the interests of justice and public safety require compulsory official autopsies in approximately 25% of all deaths referred to the office of the average coroner or medical examiner. This would comprise about 5% of all deaths. Beyond this figure it is felt that the law of diminishing return operates and that the cost per case mounts rapidly for the discovery at autopsy of each previously unsuspected murder or hazard to public health. If the cost of medicolegal examinations is to be held at a level that will insure the acquisition of such facts as are necessary to prevent the criminal prosecution of any citizen because of inadequate or incompetent medical evidence, and will insure that relatively few murders or previously unsuspected hazards to public health will pass unrecognized, the funds allocated to the office of coroner or medical examiner should be sufficient to employ expert pathologists to perform autopsies in at least 25% of all violent or unexplained deaths.

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To the Editor:—It was gratifying to notice that the lead article in the Aug. 27, 1955, issue of THE JOURNAL was devoted to forensic medicine. I read the article by Dr. Henry W. Turkel, "Evaluating a Medicolegal Office," with a great deal of interest. Noteworthy is the first sentence in which is stated: "There is wide and general agreement that 20 to 25% of all deaths require medicolegal investigation." Dr. Turkel continues by defining an "autopsy index," which is:

$$\frac{\text{“no. of medicolegal autopsies}}{\text{total deaths in the community}} \times 100\text{”}$$

In his article he states further that the autopsy index in states with adequate statutory provisions should range between 20.7 and 25. In other words, he advocates an autopsy in every coroner's or medical examiner's case although he cited various medicolegal authorities who feel that, in general, 20% of all cases coming into a medicolegal officer's jurisdiction require autopsies. This is greatly different from 100%. While autopsies in as many as 50% of all medicolegal cases, as defined by Dr. Turkel, may be desirable in urban areas with a large transient population, such as New York City, there is no reason to believe this is necessary or desirable for the country as a whole. There are many instances where a complete autopsy would yield little evidence of medicolegal importance that could not be determined from a careful examination of witnesses, the scene of death, and external examination of the body. Such evidence would almost certainly stand up in most courts. It is well recognized that a coronary occlusion may be the proximate cause of an automobile accident, but why perform an autopsy on the passengers? An occasional victim of suicide may be suffering from organic brain disease. But is it in the public's interest to go to the expense of performing autopsies in all cases of suicidal death, especially when the fact of suicide is well documented with an obvious cause of death and a bona fide suicide note? It is also difficult to understand that an autopsy on an 85-year-old patient who died in a hospital with a well-established cause of death several weeks after falling and breaking a hip would produce sufficient additional evidence of medicolegal importance to justify the expense to the government. Certainly a postmortem blood sample or spinal fluid sample should usually be obtained for analysis for alcohol. These should be obtained in all medicolegal cases except in the very young. I do not mean to belittle the importance of performing autopsies in all cases where there exists a possibility of criminal liability of another, where trauma of unknown origin exists, where there was no known medical attention recently, or where there were no competent witnesses to the death and the attending physician is unable to ascribe a known cause. In such cases an autopsy is mandatory, of course. It is my experience, however, that many highway fatalities and true suicides, and some sudden and unexpected deaths from natural causes do not require an autopsy. In these cases the cause of death can be ascribed with reasonable accuracy. However, I may not be so much at variance with Dr. Turkel as this may appear depending on our definitions of an autopsy. By autopsy I mean a complete investigation of the head, thorax, abdomen, and other regions as the circumstances may require. To my mind, an autopsy is not merely an examination of the external appearance of the body, nor minor procedures such as obtaining a sample of a body fluid for chemical analysis. I doubt the public benefits significantly from increasing the autopsy rate from between 20 and roughly 50% of all medicolegal cases, as exists in such areas as New York City, New Orleans, Baltimore, Cleveland, and the state of Vermont, to 100% as Dr. Turkel suggests. This would cause the expenditure of a great deal more public funds although from a scientific viewpoint there is no doubt that something can be learned from all autopsies.

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THE CANCER PATIENT

To the Editor:—I have read many articles on whether to inform a patient he has cancer, but most seem to miss the point. In my opinion the patient with a possibly curable cancer should almost always be told in order to make him understand the reason for treatment, which often causes considerable discomfort. No one knows how he will react to a given situation beforehand. Conclusions based on questionnaires inquiring how one would wish to behave under a hypothetical situation are not valid. The only real problem is in the situation where the malignant disease is hopeless. I have almost always found that if I wait the patient will never ask me "Do I have a cancer?" If he does, I answer him honestly, but most of these people have a good idea of what is causing their illness and do not wish to have us close the door.

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MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Aortic Stenosis: A Clinical Study. M. B. Matthews, W. E. Medd and R. Gorlin. Brit. M. J. 2:759-763 (Sept. 24) 1955 [London, England].

The authors report on 50 patients, between the ages of 9 and 76 years, with aortic stenosis. There were 31 males and 19 females. The condition was congenital in 6, rheumatic in 20, and of undetermined origin in 24. The incidence of rheumatism was greater in the female than in the male patients. Twenty-one of those with aortic stenosis of undetermined origin were men. Enlargement of the left ventricle was revealed by fluoroscopy in 44. The brachial arterial pressure pulse was recorded in 39 patients; the measurement of the systolic upstroke time from the end of the diastole to the final sustained peak of the systole was greater than 0.15 second in 37 patients. One of the remaining two patients had minimal stenosis, while no explanation was found for the normal upstroke time in the other. In the presence of the characteristic harsh systolic murmur, maximal either in the aortic area or in the suprasternal notch, the severity of the stenosis was established by evidence of the left ventricular hypertrophy, and it was supported by a systolic upstroke of more than 0.15 second in the brachial arterial pressure tracing. The critical aortic valve area appears to be of the order of 0.5 sq. cm. in isolated aortic stenosis and is variably larger when there is coexisting aortic incompetence. Comparison of the natural history of aortic stenosis with that of mitral stenosis shows that in the former there is a long symptomless period and, when left ventricular failure occurs, a short period of severe symptoms until death, but at any moment sudden death may occur. In the latter there is a comparatively long period of severe symptoms and the downhill progress is marked by exacerbations that are often associated with attacks of bronchitis, with pulmonary infarction, or with pregnancy. The problem of selection of patients for valvulotomy is more difficult than in mitral stenosis, since severe aortic stenosis is often compatible with an active life, and when left ventricular failure eventually occurs the valve may well be so abnormal as to prohibit an effective valvulotomy. At present, the operative mortality is high and the long-term results are unknown.

New Antidiabetic Principle: Results of Clinical Studies. H. Franke and J. Fuchs. Deutsche med. Wchnschr. 80:1449-1452 (Oct. 7) 1955 (In German) [Stuttgart, Germany].

A new sulfonamide preparation N_1-sulfanilyl-N_2-n-butylcarbamide (BZ 55) was given a trial in healthy persons in whom it caused pronounced fatigue, sweating, sensation of hunger, tremor, and a certain euphoria. Blood sugar determination showed definite hypoglycemic effects. The drug then was given to 50 patients with diabetes mellitus. In diabetics who were not treated with insulin, delayed depression of the blood sugar level resulting from the administration of BZ 55 caused considerable reduction or complete subsidence of glycosuria. As a rule, the same results were obtained in diabetic patients treated with insulin. BZ 55 failed in diabetic patients who did not show an easy response to insulin or in those in whom diabetes mellitus was made worse by associated febrile diseases such as pulmonary tuberculosis. With a diabetic diet, or even with an unrestricted diet, it was possible to discontinue the administration of insulin entirely or partly. The authors believe that the effect exerted by BZ 55 depends on the blockade of the A-cells of the pancreas causing a preponderance of the homorganic insulin in the B-cells. Apparently one does not deal with a toxic side-effect of the drug but with an improvement in the disturbed metabolism. Initial large doses of BZ 55, i. e., 1 gm. three times daily for several days, should be given orally; treatment may then be continued with a maintenance dose of 1 to 1.5 gm. daily. Undesirable side-effects were not observed with these doses.

An Effective Peroral Antidiabetic Drug (BZ 55). F. Bertram, E. Bendfeldt and H. Otto. Deutsche med. Wchnschr. 80:1455-1460 (Oct. 7) 1955 (In German) [Stuttgart, Germany].

N_1-sulfanilyl-N_2-n-butylcarbamide (BZ 55) was given a therapeutic trial in 82 patients with diabetes mellitus varying in degree of severity and in duration. The drug was administered in tablets of 0.5 gm. and, because of the delayed onset of its hypoglycemic effects, 5 tablets were given on the first day of treatment, 3 tablets on the second day, and 2 tablets on successive days, and this at first without consideration of the duration and severity of the diabetes mellitus, the patient's body weight, and the conditions of absorption. A therapeutically effective blood sugar level was obtained with these doses in most of the patients. In 28 diabetic patients between the ages of 49 and 77 years, who had been treated exclusively by dietetic measures, constant glycosuria of more than 100 gm. per day subsided completely within a few days of treatment, and simultaneously there occurred a rapid depression of the fasting blood sugar level of from 300 mg. per 100 cc. to below 150 mg. per 100 cc., as well as a definite lowering of the daily profile with maximal values below 200 mg. per 100 cc. After a 10-day course of treatment, it was possible to discontinue the administration of the drug in several patients on a strict diet whose metabolism remained balanced for four months of follow-up. Three patients with mild acidosis without signs of precoma were treated with high doses of BZ 55 up to 5 gm. daily for several days, but without effect on the high blood sugar level, the high glycosuria, or the acetonuria. In 38 diabetic patients between the ages of 41 and 77 years who had been treated with insulin in doses up to 88 units daily, administration of this drug was discontinued abruptly and administration of BZ 55 was instituted with the previously mentioned schedule, and occasionally with 5 tablets on the first day and 3 tablets not only on the second but also on successive days. In 28 of the 38 patients, BZ 55 proved to be a complete substitute for insulin, although the metabolism occasionally became unbalanced temporarily in the course of the first days of the treatment; in the remaining 10 patients decompensation occurred, sometimes immediately and sometimes after one to two weeks, requiring reinstitution of insulin therapy. In 10 diabetic patients between the ages of 15 and 40 years, BZ 55 was ineffective. Tolerance of the drug was good without exception. There were no undesirable side-effects, except for a definite sulfonamide dermatitis in three patients in the course of the first three days of the treatment and a generalized pruritic rash on the 12th, 13th, and 20th days after the start of the treatment in three other patients. As a result of their experiences, the authors feel justified to state that BZ 55 is the first antidiabetic drug that is definitely effective when given orally. Exact dietetic measures are as indispensable to the use of this drug as to that of insulin. Further experiences are required regarding mechanism of action, width of indications, optimum dosage, and possible side-effects. Routine use of BZ 55 must be postponed until the results of extensive trials now in progress at several clinics are known.

The place of publication of the periodicals appears in brackets preceding each abstract.

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A Concept of Diabetes. W. P. U. Jackson. Lancet **2**:625-631 (Sept. 24) 1955 [London, England].

Jackson shows that, apart from the clinically obvious glycosuria, ketosis, and hyperglycemia, diabetes is an innate obscure disorder of carbohydrate metabolism, which manifests itself in curious diverse ways such as in the hypertrophied islets of overweight stillborn babies, in microaneurysms in the retina, in cardiac infarction in the female, and in excessive tallness in the child and obesity in the mother. The cause of diabetes is not known nor is its real relation to growth and size understood, but apparently diabetes in the latent form ("pre-diabetes") remains with the victim years or decades before he or she becomes overtly diabetic. During this time, pregnancy, corticotropin therapy, acquisition of adrenal cortical hyperfunction (Cushing's syndrome) or of acromegaly, a micrococcic (staphylococcic) infection, or overeating may uncover the individual already predisposed to diabetes. The previously adequately compensating pancreas cannot stand the additional stress completely, and evidence of the latent diabetic state is brought to the surface, divulging its menacing presence by embryopathies or changes in carbohydrate tolerance. Hence it is wrong to talk of diabetes only when glycosuria and hypercalcemia are present. It is a disorder that goes back much further than that—even into the womb. Pregnancy is a dangerous stress to the pancreas. That it is diabetogenic to the mother is evident from the worsening of the hyperglycemia and the retinopathy during pregnancy in a woman with established diabetes; from the appearance of retinopathy for the first time during pregnancy, and its disappearance after parturition; from the occasional appearance of hyperglycemia and glycosuria in a nondiabetic, which disappears after parturition; from the hypertrophied pregnancy pancreas; from the rarity of diabetes in the post menopausal woman who is childless; and from the potentiation of the diabetogenic effect of cortisone and alloxan in laboratory animals. That pregnancy is diabetogenic also to the fetus is demonstrated by the fact that the infant of the diabetic mother is often stillborn, oversize, and overweight. Such a baby is also red, fat, flabby, edematous, and weak. It respires with difficulty and has hepatomegaly, cardiac hypertrophy, erythroblastosis, and hyperplasia of the islets of Langerhans. The abnormal internal uterine environment of the prediabetic woman may also produce either a stillbirth, due to excessive size and other defects, or a child who grows too tall and has an abnormal vascular system and a tendency to the development of diabetes. With regard to the recognition of the prediabetic woman, the author says that, starting with a very large baby or an unexplained stillbirth, it is often possible to detect whether prediabetes in the mother was the cause by testing the glucose tolerance of mothers after childbirth. There is considerable evidence that children, before becoming diabetic, grow excessively in both size and weight. The author also comments on diabetes and obesity in middle age, the role of the growth hormone, of insulin, and of the glucocorticoids.

SURGERY

Congenital Aneurysm of the Right Aortic Sinus Associated with Coarctation of the Aorta and Subacute Bacterial Endocarditis: Ante-Mortem Report of a Case. I. Steinberg and N. Finby. New England J. Med. **253**:549-552 (Sept. 29) 1955 [Boston].

The occurrence of an unruptured aneurysm of the right aortic sinus in the presence of subacute bacterial endocarditis, aortic regurgitation, and coarctation is described in a 27-year-old woman who was admitted to the New York Hospital in New York City, because of congenital heart disease that had been discovered shortly after birth. For the first 12 years she was well. At the age of 20 the patient had subacute bacterial endocarditis and was treated successfully with penicillin for two weeks. Nine months before her admission to the New York Hospital she had a second attack of subacute bacterial endocarditis and was treated at another hospital with penicillin and streptomycin for seven weeks. When she was first admitted to the New York Hospital, roentgenograms of the chest were made and angiograms in the left anterior oblique view were taken that showed marked hypertrophy of the left ventricle, coarctation of the aorta, prominent collateral arterial branches, and a saccular aneurysm of the right aortic sinus, measuring 2.2 cm. in diameter. Because of fever and persistent moderate leukocytosis, the patient was treated with large doses of penicillin for two weeks and discharged to her home, where she continued to notice easy fatigability and had dyspnea with moderate exertion. Two months later she was digitalized because of episodes of nocturnal dyspnea, and this early sign of heart failure warranted her readmittance to the hospital for surgical treatment. With the aid of hypothermia, the coarcted segment of the thoracic aorta was excised and an end-to-end anastomosis was made with the aid of a Pott clamp. The pulsatile aneurysm was seen and palpated; its size conformed to that shown by the angiocardiogram. Repair of the aneurysm did not appear advisable because of the presence of severe aortic regurgitation. The systolic murmur along the left sternal border, which had been heard preoperatively, disappeared after the operation. There was postoperative lowering of systolic blood pressure and increased blood pressure in the legs. Three months after the operation, the patient felt well and her exercise tolerance was improved. Although not enough time has elapsed for proper evaluation of the result, the authors' case, which was diagnosed during life, suggests that, in uncomplicated cases, particularly before rupture compromises the heart, surgical treatment is feasible through the right cardiac chambers.

The Results of Direct Vision Closure of Ventricular Septal Defects in Eight Patients by Means of Controlled Cross Circulation. C. W. Lillehei, M. Cohen, H. E. Warden and others. Surg. Gynec. & Obst. **101**:447-466 (Oct.) 1955 [Chicago].

The authors describe the techniques utilized and the observations made on the first eight patients in whom ventricular septal defects were closed by open cardiotomy utilizing total bypass of the heart. Controlled cross circulation provides a reliable method for excluding the heart and the lungs from the circulation for prolonged periods. It consists of the simultaneous reciprocal exchange of equal quantities of compatible blood from the arterial system of the donor to the patient's arterial circulation and from the caval system of the patient to the veins of the donor. The donor's circulation has to oxygenate and revitalize the venous blood received from the patient. A pump is essential to control accurately this continuous interchange of blood between patient and donor. Technical factors in the clinical application of cross circulation are described in detail, with particular reference to the cannulation, anesthesia, and selection of compatible donors. Eight patients, all of whom were seriously ill with ventricular septal defects, cardiomegaly, and pulmonary hypertension, had their circulatory systems linked with a suitable donor, their hearts and lungs totally bypassed, and a right ventricular cardiotomy carried out to permit direct vision suture of their ventricular septal defects. All operations were carried out at normal body temperatures. The hearts and lungs of these eight patients were totally bypassed for from 5 to 26½ minutes, during which time the patient's body was perfused at reduced rates of flow based upon the azygos flow experimental studies. These reduced rates of flow have been demonstrated to be safe. There were two deaths in these first eight patients. Both involved infants, occurred 4 and 11 days after operation, and were caused by respiratory complications, to which these patients are particularly susceptible. Disturbances of the conduction systems, such as ventricular fibrillation or persistent complete heart block, did not occur, although all defects were closed by direct sutures placed in the ventricular septum with no effort being made to avoid the so-called vulnerable areas. Experimental observations indicating that the heart, euthermic and totally bypassed, needs only a very reduced coronary arterial flow to remain well oxygenated were verified in man. Furthermore, such a heart becomes very resistant to arrhythmias. Such possible complications as air embolism, excessive hemolysis, or postoperative hemorrhage have been completely absent. Recatheterization of four of the six surviving patients from four to nine months after operation revealed that the septal defect was completely closed and that no shunt remained. In two of these patients, the pulmonary pressure has returned to normal. The four patients represent the first to receive complete correction of ventricular septal defects, with disappearance of murmurs and thrills and closure of the shunt.

Survival After Lung Resection for Bronchial Carcinoma. J. R. Bignall and A. J. Moon. Thorax **10**:183-190 (Sept.) 1955 [London, England].

Bignall and Moon studied the duration of life after lung resection for bronchial carcinoma and the effects of various factors on survival in a group of 531 patients treated at hospitals for diseases of the chest between 1940 and 1951. Four hundred fifty-three survived the early postoperative period. Their chance of surviving one year was 63%, two years 47%, and five years 33%. The two and five year rates for those reported to have squamous tumors was 52% and 36%, compared with 34% and 26% for those with undifferentiated growths. The apparent involvement of the mediastinal nodes at operation had a considerable influence on the survival. The two and five year rates for those without enlarged nodes were 61% and 48%, but for those with enlarged nodes the rates were only 27% and 11%. The prognosis appeared to depend to some extent on the location of the tumor. The highest survival rates were observed with cancers of the right upper lobe, the two year rate being 57%; the left upper and right lower lobes had similar though slightly lower rates, but the two year rate with cancers of the left lower lobe was significantly lower, being only 36%. No regular pattern of survival in relation to age was detected. The prognosis was better in women than in men. The survival rates were lower in those with symptoms for six to eight months than in those with either shorter or longer histories. The differences in survival rates after pneumonectomy and lobectomy could be largely attributed to the smaller proportion with involved mediastinal nodes among those having a lobectomy. The operative mortality decreased from 19% between 1940 and 1946 to 10% in 1950 and 1951.

NEUROLOGY & PSYCHIATRY

The Probable Influence of Salk Poliomyelitis Vaccine on Reported Poliomyelitis in North Carolina. B. G. Greenberg and C. M. Cameron Jr. North Carolina M. J. **16**:391-395 (Sept.) 1955 [Winston-Salem, N. C.].

From the official records of poliomyelitis reports in the files of the division of epidemiology of the North Carolina State Board of Health during the five-year period of 1950 to 1954, an attempt was made by the authors to predict, within certain limits, the total number of reported paralytic and nonparalytic cases of poliomyelitis that might be expected in the state. In an average year, there will occur in North Carolina a total of 630 reported cases of poliomyelitis of all types. Of these 630 cases, 350 are expected to manifest some degree of paralysis. In a low incidence year, one may expect 409 cases of all types, of which 226 will be paralytic. In the course of a high incidence year, 987 cases are predicted, of which 551 will be paralytic. From the report of Dr. Thomas Francis of the University of Michigan on the 1954 field trial of the Salk vaccine, the authors attempted to predict what influence the use of the vaccine will have on the abovementioned anticipated incidence of poliomyelitis. The 630 cases of all types that might be expected in the average year would be reduced to 321 if every person in the state received a complete immunization with the Salk vaccine and the effectiveness were the same in all age groups of those studied in the 1954 field trial. In like manner, the 350 paralytic cases that are anticipated in the course of the average year could be reduced to 98 if 100% of the population were successfully inoculated. These estimates are based on the Francis report findings that the vaccine is 49% effective against all types of poliomyelitis, not effective against nonparalytic poliomyelitis, and 72% effective against paralytic poliomyelitis. The use of Salk vaccine among all first and second grade school children only would reduce the 630 cases of all types of poliomyelitis expected in the average year to 576, the high figure of 987 to 914, and the low figure of 409 to 368. The 54 cases of paralytic poliomyelitis expected in these age groups in an average year could be reduced as low as 15 if every first and second grader received the vaccine. Therefore, this would reduce the total number of paralytic cases expected in the average year from 350 to 311. A recent survey by the North Carolina State Board of Health showed that less than half the counties in the state plan to offer second inoculations before the opening of school, and early reports from counties offering vaccine indicate that from one-fourth to one-third of the eligible children have responded to the invitation to a second dose of vaccine. The authors conclude that there is every reason to believe that the use of the Salk vaccine among some first and second grade school children will have little influence on the poliomyelitis rates recorded in the state of North Carolina in 1955. It may be suggested that even widespread inoculations among hundreds of thousands of residents of North Carolina may have no statistical impact on the disease for several years to come.

Acute Poliomyelitis in Infants Under One Year of Age: Epidemiological and Clinical Features. H. Abramson and M. Greenberg. Pediatrics **16**:478-488 (Oct.) 1955 [Springfield, Ill.].

Of a total number of 3,510 cases of poliomyelitis that occurred in New York City in the course of 1949 and 1950, 92 occurred in infants less than one year old, of whom 52 were boys and 40 were girls. Comparison of the epidemiological and clinical features of poliomyelitis in these infants with those in children and adults revealed that clinically recognizable poliomyelitis was of infrequent occurrence among infants less than one year old. It was even more infrequent among infants in the first six months of life. This is in marked contrast to the findings in the 1950 epidemic in Israel, where one-third of all cases occurred in the first year of life and one-tenth in infants in the first half year of life. Infant boys exhibited a greater susceptibility to the disease than girls. Eight of the 92 infants died, a high mortality rate of 8.7%; fatalities were particularly high among infants less than 3 months old, with some predominance of deaths in boys. Nonparalytic forms of poliomyelitis occurred infrequently among the infants less than one year old, especially in the first six months of life. Paralytic forms of the disease were dominant, spinal involvement being more common than bulbar. Deaths occurred chiefly in infants with the bulbar form of poliomyelitis, as in older children and adults. The mortality rate was higher in infants than in older children and higher than in patients of all ages combined. The onset of poliomyelitis among infants less than one year old was variable; it was acute, with fever, fever with nuchal spasm, or the triad of fever, nuchal spasm, and spasm of back muscles. Temperature at the onset of illness averaged 98.3 F (36.8 C), with a low of 97.6 F (36.3 C) and a high of 102 F (38.8 C); subsequent temperatures were higher, the mean being 102.8 F (39.3 C). The interval between onset of illness and first detection of paralysis averaged 5.5 days, with a spread from the day of onset to 25 days later. Paralysis of a single limb occurred more frequently than of two or more limbs, and the ratio of arm to leg paralysis was about 1 to 3. Initial spinal punctures in infants less than one year old were made on an average of 3.4 days after the onset of the disease in nonparalytic cases, and 5.7 days in paralytic cases. The spinal fluid was usually clear, with a mean count of 91 lymphocytes per cubic millimeter. The average sugar content was 55 mg. per 100 cc. of fluid, and protein, 72 mg. per 100 cc. of fluid.

PEDIATRICS

Mumps Encephalitis: Pathology and Pathogenesis. W. L. Donohue, F. D. Playfair and L. Whitaker. J. Pediat. **47**:395-412 (Oct.) 1955 [St. Louis].

The characteristic central nervous system lesion found in two cases of fatal mumps encephalitis was an acute perivascular demyelinization similar to that seen in the other postinfectious encephalitides. Reports in the literature of mumps encephalitis with a fatal termination are few, and even fewer are the cases in which a histological study of the nervous system has been made post mortem. A case previously reported by one of the authors (W. L. D.) in 1941 and another observed in 1954 are therefore presented together. The first of the authors' patients was a 5-year-old girl who died three days after admission to the Hospital for Sick Children, Toronto, Canada; the second was a 14-year-old boy who died suddenly two days after he was admitted in coma to St. Catharines General Hospital. The lesions in these two cases were essentially the same and were similar to those described in the few unequivocal cases contained in the literature. The incidence of neurological complications in mumps cannot be accurately estimated, because mumps is largely a benign disease of childhood treated at home and data for all the home cases are not available. Clinical involvement of the nervous system, however, is not rare and may be manifested in a variety of ways. The most familiar of these is the so-called meningitis or meningoencephalitis, which is characterized by an increase of cellular elements, chiefly lymphocytes, in the cerebrospinal fluid. This pleocytosis of the cerebrospinal fluid may or may not be accompanied by symptoms and signs of encephalitis or meningeal irritation. The mumps virus is also responsible for a significant number of cases of so-called "acute aseptic meningitis," in which there is no clinical evidence of parotid, testicular, or visceral involvement. These may be confused with nonparalytic poliomyelitis. Myelitis, polyneuritis, and neuritis limited to one or more nerves have occasionally been reported and may cause permanent damage; usually, however, the paresis or paralysis is transient and recovery is complete. Evidence is accumulating to support the belief that mumps encephalitis is caused by the mumps virus itself, probably as a result of either an augmentation or enhancement of its neurotropic properties or a particular susceptibility of the nervous tissue in certain persons.

Tay-Sachs Disease in two Sinhalese Children. C. C. de Silva and G. E. Tennekoon. Brit. M. J. **2**:768-770 (Sept. 24) 1955 [London, England].

Two cases of cerebromacular degeneration of Tay-Sachs type are described in Sinhalese boys, aged 2½ and 2 years when admitted to the Children's Hospital in Colombo, Ceylon. The children showed mental retardation, myoclonic fits, blindness with a dark purple patch at the fovea centralis surrounded by a white halo of avascular degenerated tissue, and primary optic atrophy. In one patient, the disease started at 2 months of age and the duration of the disease was two years and eight months; in the other patient, the disease started at the age of 2 years and its duration was only two months. Autopsy was performed in both cases and microscopic examination of the brain revealed swollen ganglion cells with a foamy cytoplasm and a small nucleus, which had been described previously by other workers. The only unusual feature in one case was the presence of large hyaline masses undergoing calcification in some parts of the brain substance and in the piarachnoid. The nature of these changes is unknown. The infantile type of Tay-Sachs disease has been described by other workers in Swiss and Norwegian children, and there is no longer any reason to state that Tay-Sachs disease arises almost exclusively in Jewish infants.

Contribution to the Study of the Immune Response Following Antidiphtheritic Vaccination by the Percutaneous Route. G. Santopadre and L. Poli. Clin. pediat. **37**:483-490 (July) 1955 (In Italian) [Bologna, Italy].

Results of experiments on rabbits indicated that it was possible to obtain a state of antitoxic immunity against diphtheria by applying pads of adhesive plaster containing diphtheria anatoxin in a dose equal to 50 Lf to the shaved back of the animals. The application of similar pads containing more anatoxin (100 Lf) to the unbroken skin (patch vaccination) of 10 children who had never been vaccinated against diphtheria had no effect. The same studies on 16 children, who had been vaccinated three to six years earlier and in whom the reaction to Schick's test was markedly positive, revealed that the reaction had become negative in all of them and that the serum antitoxin level was increased. Studies on 34 children, of whom only 23 had been vaccinated in the second year of life but in whom the reaction to Schick's test was positive, revealed that the patch vaccination had no effect in the 11 children who had never before been vaccinated and in 3 vaccinated children who had shown no acquired reactivity before the pads (three pads were applied at a 10 day interval) were applied. The reaction to Schick's test became negative only in those vaccinated children in whom a certain degree of acquired reactivity was present before the patch vaccination. The different behavior of the immune response of the rabbits and the children to the patch vaccination was probably due to the fact that the anatoxin dose was not sufficient to bypass in man the threshold limit essential to stimulate an immune movement in persons never before vaccinated and also to the fact that, despite all precautions taken, it was difficult to avoid the production of a solution of continuity in the skin of the rabbits while shaving them. The doses were sufficient, however, to reawaken and reestablish an immune process in those children in whom, because of a previous vaccination, there still was, even if only in the subliminal state, a certain degree of acquired reactivity. Thus, although this new method cannot replace the standard antidiphtheritic vaccination, it can be useful if it is used for the recall vaccination. In fact, the antidiphtheritic vaccination that the Italian laws make compulsory for all children in the second year of life confers an immunization that lasts for an average of two to three years. This immunization period can be prolonged if a new dose of vaccine (recall vaccination) is given in the following years. The authors suggest that this new method be used instead of recall injections, which are more painful and more disagreeable to the children.

UROLOGY

Adenocarcinoma of the Kidney. G. W. Briggs. Australian & New Zealand J. Surg. **25**:53-61 (Aug.) 1955 [Melbourne, Australia].

The 100 consecutive cases of carcinoma of the kidney presented were compiled from the records of several Melbourne hospitals. No case was included unless the diagnosis had been proved microscopically. A large number of cases with strong presumptive diagnoses were thus rejected. The triad of pain, hematuria, and mass was present in only 25 cases. The commonest single symptom was hematuria, this being present in 55 patients. In 17 instances, the hematuria was an isolated event before presentation at hospital, while 38 patients had experienced periodic episodes of blood in the urine. Pain was nearly as frequent as hematuria, being a feature in 52 cases. Loss of weight was a common symptom. In nine instances, the presenting symptom was due to a secondary manifestation In four of this group, there were bony metastases and in two, cerebral metastases. The presenting feature in one patient was a lump in the neck, while the last presented dyspnea due to pleural effusion. Thirty-seven patients were hospitalized without symptoms relating to the renal tract. A palpable abdominal mass was present in 16 of these patients, and, in 8, carcinoma of the kidney was correctly diagnosed. The diagnosis of abdominal carcinoma, primary site unknown, was made in five, and malignancy was not suspected in the three others. Malignancy was likewise not suspected in 11 of the 21 patients in whom no palpable mass was present. Thus, of the 37 patients with no renal history, 14 reached autopsy with no prior clinical suspicion of malignancy. Autopsy was done in 48 cases, and metastases were found in 35 of these. At autopsy, it was quite common to find a small tumor 1 to 3 cm. in diameter, but a tumor of this size was seldom seen at operation. Metastases are often present before nephrectomy is performed for an apparent local clinical lesion. The prognosis of the patient with this lesion is not improved by early surgical ablation. The malignancy of renal carcinoma is emphasized.

Subtotal Cystectomy in Treatment of Atony of the Bladder. F. J. Götzen. Ztschr. Urol. **48**:577-583 (no. 9) 1955 (In German) [Leipzig, Germany].

Götzen differentiates three forms of bladder atony: the neurogenic form, the decompensatory or mechanically induced form, and the myoneurogenic or congenital form. In the neurogenic form, in which all of the musculature controlling expulsion is atonic, even extensive resection of the mobile parts of the bladder will produce little improvement. Subtotal cystectomy is indicated chiefly in the myoneurogenic form of bladder atony and in patients in whom, after removal of the mechanical obstruction and prolonged bladder drainage, incomplete evacuation with a large amount of residual urine persists. The technique of subtotal cystectomy is comparatively simple. It was first suggested by

Orr in 1937 and subsequently has been used by a number of other urologic surgeons. Whereas some advise rigorous reduction of the size of the atonic bladder, others advocate a two-thirds resection. The author removes a little over half of the organ. After extraperitonealization of the bladder, its movable parts, the vertex and the lateral and anterior walls, are mobilized and pulled forward by means of a clamp attached to the vertex. Two lateral holding sutures at the level of the zone of resection facilitate the handling after the size of the organ has been reduced. Closure is done with the aid of a purse-string suture, and turn-in sutures, placed over it, further reduce the capacity of the bladder and secure the closure. The author used this method successfully in three patients. The subtotal resection improves the function of the bladder and greatly reduces the residual urine.

INDUSTRIAL MEDICINE

Pulmonary Disease in Relation to Metallic Oxides. K. M. A. Perry. Lancet **2**:463-468 (Sept. 3) 1955 [London, England].

If the oxides of metals are inhaled into the lung and remain in its lymphatics they will throw x-ray shadows, the density of which varies with the atomic weight of the metal. Some dusts are dissolved and are excreted by kidney or intestine, but others remain and cause shadowing. Though they may be inert and may not give rise to fibrosis, they may interfere with elasticity. Exposure to barium peroxide occurs in the manufacture of paints, fireworks, dyes, inks, depilatories, insecticides, rat poisons, glass, and linoleum and in the rubber industry. Exposure to the dust of barium peroxide in association with silica occurs during mining, and it produces the densest nodular lung shadows yet recorded. Pulmonary opacities have also been observed after the use of Pitressin snuff for diabetes insipidus, barium peroxide serving as the base for this snuff. Exposure to iron dust and fumes occurs in welders, oxyacetylene cutters, polishers, tool makers, cutlery makers, foundry workers, and hematite miners. The last two occupations involve exposure to iron dust and fumes associated with silica, and in consequence silicosis is a recognized risk in iron foundries and mines. A benign pneumoconiosis may develop in workers who inhale tin oxide dust. Although tin may be deposited in the lymphatics of the lungs, it does not give rise to fibrosis. Silver polishers use rouge that is iron oxide and are thus exposed to a dust consisting of a mixture of silver and iron. There is little doubt that part of the x-ray changes seen in these workers is caused by silver. The oxides of manganese, beryllium, vanadium, and osmium can all cause a chemical pneumonia. The sarcoid caused by beryllium is discussed in greater detail. Cadmium dioxide produces an unusual form of central emphysema, associated with impairment of respiratory function. While most workers in contact with aluminum dioxide dust have not been harmed by this exposure, severe pulmonary fibrosis, which caused some fatalities, has been reported in Germany and Canada, but these cases remain a mystery. Pulmonary carcinoma is observed in miners who have contact with arsenides. Thus diverse patterns of pulmonary disease may result from exposure to dust and fumes of metallic oxides. When the dust and fumes are extracted from the air in the factory and passed through chimneys into the atmosphere, the prevalence of pneumonia has been known to increase in the neighboring population; in people living near beryllium factories, sarcoidosis has been reported. Deaths in London after the dense fog on Dec. 8, 1952, have been attributed to acute bronchitis and its complications resulting from the inhalation of the dioxide and trioxide of sulfur extruded by factory and domestic chimneys.

Low Backache in Industry: Review of 1,163 Cases. R. N. Wilson and S. Wilson. Brit. M. J. **2**:649-652 (Sept. 10) 1955 [London, England].

Five years of experience at an ironworks with 1,163 men employed in heavy industry showed that suffering and absenteeism caused by low back pain can be greatly reduced if all cases, even trivial ones, are treated promptly by relaxation and manipulation. The methods used are admittedly empirical, but the uncertainty surrounding the exact causes of backache fully justifies the use of such methods, especially when they are effective. The patients' complaints vary from a dull low backache to acute stabbing pains in the back and/or buttock, groin, thigh, leg, and foot. Most patients are able to walk into the physiotherapy department, but a few are treated as stretcher cases by first-aid workers before being sent in. The routine treatment is begun by placing the patient in the prone position with a thin pillow under the hips and another at the head. This should give comfort even in the most acute attack. Infrared therapy is administered for 20 or 30 minutes, and the patient is encouraged to relax and to sleep if he wishes. Massage is then applied, beginning with light effleurage and gradually deepening into kneading. Full relaxation soon follows, and manipulation can then easily be performed if necessary, without anesthesia or sedation. The patient is advised concerning posture, especially when sitting, and the avoidance of incorrect lifting and of attempting to touch his toes; he is supplied with 6 codeine tablets to be taken two at a time during the next 24 hours, and he is encouraged to report again the next day if pain returns. This routine is most successful in acute attacks treated within 12 hours of onset. Injury to the sacrospinalis and other muscles, sometimes found in traumatic cases, may be treated with strapping as well as heat and massage, chiefly to give a feeling of support and to remind the patient to treat his back with care. No pressure is brought to bear on the men to remain at work, but most of them are advised to do so. Use of the term slipped disk, with its suggestions of operation and permanent transfer to less remunerative light work, is avoided for psychological reasons. A diagnosis of fibrositis, lumbago, sciatica, myalgia, or strained back or muscles, however, is acceptable, because almost everyone knows of someone who has had such a condition and has recovered completely. Simple urine tests and a straight x-ray film also have a psychological value. It is interesting to note that cold wet weather increases not only the pain of chronic backache, but also the actual number of traumatic cases. Furthermore, the first hour at work on a cold, wet morning is often the time when acute attacks occur. The loss to both employer and worker when an experienced man has to be permanently transferred to light work on account of backache is so great that every effort should be made to restore him to normal health as quickly as possible. The success of the method described, which represents an attempt by a general practitioner and a physiotherapist to deal with the problem of backache, is shown by the fact that in 1954 only 11 cases of back injury resulting in an absence from work of more than three days were reported to the factory inspector, out of a working population of 5,000; only five of these were traumatic in origin, although there were 122 traumatic cases in all.

THERAPEUTICS

Studies on the Metabolism of a New Salicylic Derivative: Ortho-Ethoxy-Benzamide (Etosalicil). F. Ducco, S. De Vercelli and R. Strobbia. Gazz. med. ital. **114**:93-99 (May) 1955 (In Italian) [Milan, Italy].

The authors report the results of studies on the metabolism of a new salicylic derivative, ortho-ethoxy-benzamide ("Etosalicil" or ethyl-salicylamide), which has the advantages over the other known salicylic derivatives of being less toxic, having a greater antirheumatic, antipyretic, and analgesic activity, and at the same time being better tolerated by the patients. They made their studies on the urine of two children with rheumatic infection who received the drug in daily doses of 3 and 4 gm., respectively, with good results and of a 29-year-old woman with rheumatic pyelosis, which developed after a mitral commissurotomy, who received the drug in daily doses of from 6 to 12 gm. orally plus 2 gm. in suppositories. The results indicated that the metabolism of the drug differs from that of salicylic acid and salicylamide. In fact, while most of the former is eliminated as such by the kidney and most of the latter is excreted as glucuronide and sulfuric ether or gentisates, about 50% of the new derivative is eliminated as soluble compounds of salicylamide (30%) and as ortho-ethoxy-benzoic acid (20%). The absence of carboxyls (acids) or free phenolic groups accounts for the complete absence of gastric disturbances during the administration of this drug and for its lesser toxicity.

BOOK REVIEWS

Cardiac Emergencies and Heart Failure: Prevention and Treatment. By Arthur M. Master, M.D., Cardiologist, Mount Sinai Hospital, New York, Marvin Moser, M.D., Assistant Physician in Medicine, Montefiore Hospital, New York, and Harry L. Jaffe, M.D., Assistant Attending Physician, Cardiology, Mount Sinai Hospital, New York. Second edition. Cloth. $3.75. Pp. 203, with 14 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1955.

In this second edition, the authors have included many of the newer drugs that have been used to treat cardiac emergencies. This is a well-written, impressive little volume which deals with practically all the emergencies encountered in the treatment of cardiovascular disease. While it does not pretend to be a textbook on cardiology, it does cover the cardiac emergencies thoroughly and specifically. The arrhythmias are well described, and the accepted methods of treatment are specifically outlined, including the exact dosages of all the drugs recommended. The selection of drugs is usually discussed when there is a choice, and the authors' preferences are stated. Acute pulmonary edema and congestive heart failure, the treatment of angina pectoris, coronary insufficiency, coronary occlusion, and anticoagulant therapy are well discussed and presented in an understandable fashion. Many of the rarer emergencies and conditions difficult to diagnose are also described in a practical manner. The section on cardiac arrest is one example of clear, thoughtful writing that should be valuable to one who is not familiar with such an emergency. This book has been kept down to pocket size. Its form and content are excellent, and it should greatly benefit any physician who is likely to encounter cardiac emergencies or patients with heart failure. It also should be of great value to medical students, interns, and residents.

Ciba Foundation Colloquia on Ageing: Volume I: General Aspects. Editors for Ciba Foundation: G. E. W. Wolstenholme, O.B.E., M.A., M.B., and Margaret P. Cameron, M.A., A.B.L.S. Assisted by Joan Etherington. Cloth. $6.75. Pp. 255, with 38 illustrations. Little, Brown and Company, 34 Beacon St., Boston 6, 1955.

In July, 1954, the third Congress of the International Association of Gerontology was held in London. Taking advantage of the availability of many authorities on the problems of aging, the Ciba Foundation at the suggestion of Prof. R. E. Tunbridge invited a number of investigators to attend a workshop session as guests of the foundation the week preceding the congress. That this decision was worthwhile is readily apparent in this report. The first meeting was planned to be a general exploration of the present state of experiments now in process dealing with the changes occurring in human tissues with the passage of time. To keep the content of the discussions informal, the size of the group was limited to 39, of whom 9 were from the United States. Following the opening remarks by Chairman Tunbridge that wisely avoided the semantic pitfalls in which the terms "geriatrics" and "gerontology" unfortunately are involved, the discussions were concerned with aging as a general phase of human existence. This provocative book raises a far greater number of questions than it answers. Although the infinite variety of biological activities going on in the human body at different rates and in different ways make it difficult to establish a common dominant theme, the editors have chosen wisely in the limitation of the topics they selected as a starting point for comments from the members of the group. Senescence is defined after which pathological changes, mental aspects, alterations in respiration, endocrine phases, and problems of nutrition are discussed. The contributions by Lewis on the mental aspects, Lansing on elastic tissue, and McCay on nutrition are particularly stimulating. One of the most valuable features is the discussion at the end of each chapter. Much of the material presented is speculative, and many important aspects of aging could not be included. Even so, this volume should prove helpful to those interested not only in the minutiae of aging but also in practical points of value to the clinician. The publishers deserve the thanks of biologists and the medical profession for presenting an attractive readable book.

The Postural Complex: Observations As to Cause, Diagnosis and Treatment. By Laurence Jones, B.S., M.D. Cloth. $9.75. Pp. 156, with 79 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1955.

Laurence Jones, a surgeon with considerable experience and a special interest in static and postural problems related to the feet, presents the theory that pronation of the feet under weight-bearing produces a forward tilt of the pelvis, exaggerates existing curves of the spine, and thereby produces neuralgias, not only in the lower back but also in the thoracic and cervical regions. Part 1 deals with postural change and evolutionary adaptations but contributes little if anything to the support of the author's theory. It is little more than a review of material that is covered during a first year course on embryology and anatomy in medical school.

Part 2 deals with causes and mechanisms, and in it the postural complex is explained and illustrated schematically by an elaborate diagram. It concludes that "since the central nervous system is a continuous structure, tension in one area must be transmitted in varying degree to all others. Conversely, for the same reason, relaxation of tension may cause corresponding release at distant points." The chapter on radiographic measurements of pelvic position is clear and well illustrated. The importance of making anteroposterior and lateral views with the patient in the standing position is rightly emphasized, and a method for measuring inequality of leg lengths and determining the angle of the pelvic tilt is described. Having explained "that serial distortion of the entire superstructure is triggered by primary internal rotation of the foot," Jones devotes a chapter to synchronized internal rotation of the lower extremity. In addition to the text, it includes a number of diagrammatic explanations of the mechanics and several photographs illustrating the effects of rotary movements of the feet on the alignment of the legs and knees. The author reminds us that the major neurovascular bundles lie close to the inner border of the calcaneus and suggests that descent of the sustentaculum occurs with angular compression of the blood vessels and nerves.

Part 3, on postural history and physical examination, is clearly written and well illustrated, but after one has read through this, he may wonder what has happened to the rest of the patient, since it deals only with his feet, legs, and back.

Part 4 is concerned with treatment. It contains chapters on the suitable shoe—reinforcement and outside correction, the individual inside adjustment of the suitable reinforced shoe, adjuvant therapy, and the correction of foot and body posture in children. The use of rigid shoes with steel shanks and long counters and the use of a plastic reinforcement to form a sort of inside counter or shell are recommended. In addition, most of the inside and outside corrections in common use today are described. Adjuvant therapy is discussed only briefly; this includes bed rest with bilateral balanced (Russell) traction for back pain followed by diathermy and massage and the use of the whirlpool bath for relief of foot and leg pain. The author believes that cortisone, corticotropin, and their derivatives materially shorten the treatment periods. Regarding the treatment of children, the author says that "although there are certain differences, basically the correction of children's shoes resembles adult techniques. . . . High shoes, except for dress purposes, have been chosen as the suitable shoe for children under the age of six." These are reinforced with plastic material and sponge rubber inserts of various types. Correction of intoeing and outtoeing is accomplished by use of training straps attached to reinforced shoes. The author presents a statistical analysis of 500 cases of chronic low back pain from different sources and discusses these briefly. The table is most difficult to evaluate because the symp-

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

toms are classified on a general basis such as fatigue, leg aches, and upper root pain, and the results are designated "substantial benefit" and "failures." The histories and examinations leave many questions unanswered in the minds of the reader. On the basis of the data given, it is impossible to arrive at a critical evaluation.

Faulty body mechanics have been related to pains from the feet to the skull by most orthopedists who followed the suggestions of Goldthwaite and his associates since 1934. In "Essentials of Body Mechanics in Health and Disease," page 22, they state, "In the slender type . . . the body inclines backward from the low lumbar region, increasing the lumbar lordosis and the forward inclination of the pelvis, with an increased rounding of the mid- or upper dorsal region and a forward projection of the neck: . . . In the lower extremities the knees are often hyperextended and the *feet pronated and strained.*" Shands in his "Handbook of Orthopaedic Surgery" described faulty posture thus, "The head protrudes, the shoulders are rounded and drooped, the chest is flat and the thoracic spine has an increased posterior convexity. The lumbar lordosis is exaggerated and the abdomen is protuberant; particularly in the lower half. *The pelvic inclination is increased. The knees are slightly flexed and the feet are pronated.*" Therefore, although most orthopedists recognize the frequent association of pronated, painful feet with certain types of back pain (postural), few will accept Jones' theory that pronated feet are the basic cause of faulty posture and of most neuralgias of the back and legs. Many will also question use of rigid shoes with reinforcements plus other inside and outside corrections as the sole treatment for pronated feet in adults and children.

Jones' book is an interesting exposition of his own theories. It should be used for reference only and only by those with wide experience and critical judgment.

Surgery of the Stomach & Duodenum: A Handbook of Operative Surgery. By Claude E. Welch, M.D., D.Sc., Visiting Surgeon, Massachusetts General Hospital, Boston. Second edition. Cloth. $9. Pp. 370, with 79 illustrations by Muriel McLatchie Miller. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1955.

The popularity of this handbook of operative surgery is attested by the demand for a second edition. The original format has not been changed, and there has been no significant revision of the material presented in the first edition, but new subjects have been added which enhance the value of the book. Of particular interest is a brief historical summary of the development of gastric surgery. The newer operations for duodenal ulcer, including tubular resection and extensive sleeve resection, are presented, as well as replacement techniques used after gastrectomy. Brief comments on subjects of current interest, such as the revival of interest in the Billroth 1 procedure and immediate gastric resection as the treatment for the acutely perforated ulcer, are also included. The important feature remains an accurate description of the technical aspects of gastric and duodenal operations, with discussion kept to a minimum. A good bibliography is included. This handbook should be a welcome addition to the library of all surgeons interested in this field, and it is highly recommended to all surgical residents.

Medical Problems of Old Age. By A. N. Exton-Smith, M.A., M.D., M.R.C.P., Physician, Whittington Hospital, London, England. With foreword by Rt. Hon. Lord Amulree, M.A., M.D., F.R.C.P. Cloth. $7. Pp. 331, with 17 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; John Wright & Sons, Ltd., 42-44, Triangle West, Bristol 8, England, 1955.

Leadership in important medical fields has been demonstrated many times by members of the profession in Great Britain. As early as 1922, Sir Humphry Rolleston in his Linacre Lectures recognized the increasing importance to the medical profession of the afflictions and deteriorations that are the common experiences of many older persons. Since Rolleston discussed medical aspects of old age, there has been a growing awareness of this field. Although articles and monographs on selected phases have been published, no textbook dealing specifically with the vexing medical problems of older citizens has previously appeared in Great Britain. This concise practical treatise on the diagnosis, management, and general considerations of health maintenance and medical service for the growing number of the elderly is an attractive handbook with an excellent index. In the foreword, Lord Amulree emphasizes the comparative newness of geriatrics and points out that in the past too many elderly patients have not received adequate treatment. It appears that in Great Britain, as in the United States, physicians as a group have not informed themselves of the specialized nature of the health and medical needs of the elderly. Here, then, is an informative and helpful workbook that tells how the sympathetic, resourceful physician may solve medical problems of the aged. The first chapter outlines the clinical implications of aging. Succeeding chapters discuss general principles of diagnosis, the maintenance of health, home care, and rehabilitation. Next, the disorders of the major body systems are interpreted. The final chapter reviews the common mental disorders that occur in Great Britain. They are pretty much the same as those found in the United States. The absence of a discussion of the new tranquilizing drugs is not a serious omission since, as yet, exact indications for their use and their scopes of effectiveness have not been determined. The roentgenograms and other illustrations are well selected. The author is to be congratulated on this contribution, and the publisher is to be commended for the excellence of the format, readability, and general arrangement of the material.

Psychiatry and the Law: Edited by Paul H. Hoch, M.D., New York State Psychiatric Institute, and Joseph Zubin, Ph.D., New York State Psychiatric Institute, New York. Proceedings of forty-third annual meeting of American Psychopathological Association, held in New York City, June, 1953. Cloth. $5.50. Pp. 232, with 3 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W.C.1, England, 1955.

This book has the same title as a textbook twice its size by Guttmacher and Weihoffen published in 1952. It is hoped that readers will not confuse the two. Because the book is a report of proceedings, it lacks the complete coverage and continuity of a textbook. The papers reprinted in this collection, however, are scholarly presentations, and most of them are well worth reading. Perhaps most interesting to those psychiatrists and lawyers faced with the problem of the defense of insanity in criminal cases are the discussions by Davidson, Abrahamsen, Roche, and Barshay. The test used in most states today when insanity is interposed as a defense to a criminal act is the rule established in the M'Naghten case in England in 1843. Great strides have been made in the field of psychiatry since that time, and the continued use of this century-old concept has often been cited as a perfect example of the lag between scientific advancement and the law's acceptance of such advances. The above discussions, presenting both sides of the issue, show that there are still grave doubts as to the wisdom of abandoning a concept that has aided the administration of justice pretty well for over 100 years. As valid studies in this field appear, a better understanding between exponents of law and psychiatry is bound to result.

How to Live 365 Days a Year. By John A. Schindler, M.D., Chairman, Department of Medicine, Monroe Clinic, Monroe, Wis. Cloth. $3.95. Pp. 222. Prentice-Hall, Inc., 70 Fifth Ave., New York 11, 1954.

This book written for the laity describes the causes and treatment of emotionally induced illnesses. Despite the vast literature on the psychosomatic element in many diseases, there is much in this book that should be of value to the average clinician. The style is fairly lucid, although at times there is a tendency to use technical terms that do not belong in a popular treatise. For example, why "cicatrix" rather than "scar?" Such lapses fortunately are few, and every point is concretely illustrated with an apt case history. As in many other books aimed at self-help, the principles expounded, sound though they are, are very difficult of application, and one is left with the feeling that, in addition to the sound advice given, many of these patients would have been further benefited or would have achieved relief sooner if they had been given definite instructions in how to relax their voluntary muscles. The author emphasizes his most important points by repeating them in summaries at the end of each chapter and in a "final blueprint" near the end of the book. This is followed by a short chapter for physicians explaining in more detail the author's views, how he arrived at them, and how he applies them in his practice. There is an index. As a book to give to patients with emotionally induced illness, this is one of the best.

QUERIES AND MINOR NOTES

ACNE AND CHRONIC HEPATITIS

To the Editor:—*A 28-year-old man has had chronic hepatitis for three years. It had an insidious onset, and its progress is marked chiefly by a progressive increase of bromsulphalein retention, which is now 20% in 45 minutes. One factor responsible for this progress is a severe cystic acne vulgaris of the back. The patient had acne prior to the hepatitis, but this had cleared completely two years before the onset of the hepatitis. Six months after the onset of the hepatitis, the acne recurred in a more severe form. Is there a factor in the hepatitis responsible for this increased severity that can be treated? Is hormone medication to be considered?*

Howard L. Gordon, M.D., Hillside, N. J.

Answer.—The acne vulgaris in this patient may be secondary to the exacerbation of the chronic hepatitis rather than vice versa. When acne is present in chronic hepatitis, antibiotic therapy, which will also reduce the organisms in the intestinal tract, should also be utilized. Thus, any one of the broad spectrum antibiotics in moderate doses might be useful. Neomycin could also be added to reduce the intestinal flora. On occasion, cortisone, hydrocortisone, or corticotropin have been of help in chronic hepatitis, and their efficacy should be tested in such cases.

DENTAL CARIES

To the Editor:—*In my pediatric practice, several patients have asked about the following advice given by dentists for children with severe caries, namely, that they must eliminate all sweets from the diet including fruits and other naturally occurring sugars. One mother actually was in tears after trying to prepare a diet eliminating all carbohydrates. 1. Are sugar and other carbohydrates of primary importance in dental caries. 2. What sort of a diet would be advisable yet practical? 3. Does not heredity play a major role in dental caries?*

M.D., California.

Answer.—The problem of dental caries has been vigorously attacked by research and clinical investigators with no final answer of single etiology nor prophylaxis yet available. Answers given here conform to findings of more than one investigator in each case. 1. Sugar as a substrate for acidogenic fermentation in the mouth is of importance in the caries-susceptible individual. As "sugar" particular reference is made to glucose and sucrose separately or in prepared foods. Polysaccharides allow fermentation-degradation productive of acid at a much slower rate. Ninety per cent of the caries reduction accomplished by sharp limitation of all carbohydrates has been accomplished by removal of monosaccharides and disaccharides. 2. Complete elimination of carbohydrates from the diet is untenable, and as in the correspondent's case, virtually impossible. An advisable diet for such a caries-susceptible child should be free of jams, jellies, candy, heavily sugared beverages, canned (sweetened) fruits, sweetened pastries, and canned peas or corn. Recent confirmed evidence of caries activity during and for about 15 minutes after each feeding correlate well with higher caries activity in those who spend greater time in feeding either by slow eating, or frequent, between-meals supplements. Glutinous foods result in greater caries activity than those of thinner consistency by their prolonged apposition to the tooth. These two factors have made it worth while to advise caries-susceptible individuals to brush teeth, or at least rinse the mouth thoroughly after each meal. An excellent, simple, and explicit dietary is available (Dietary Program for the Control of Dental Caries, Ann Arbor, Mich., Overbeck Company, 1951). 3. Heredity does play a major role in dental caries, but until man exhibits the same care in choosing a mate as in the purchase of horses or cattle the "outbreeding" of dental caries is unlikely. Five factors evident in this problem have been detailed as: (*a*) genetic history, (*b*) developmental-nutritional background, (*c*) salivary-dental interrelationship, (*d*) oral micro-organisms, and (*e*) oral food debris. Dietary control active through factors, *b*, *d*, and *e* has given the best clinical results (over 80% experienced a definite reduction in caries incidence) in caries control for the caries-susceptible individual.

INFANT FEEDING AND CIRCUMCISION

To the Editor:—*Please furnish information on the following subjects: (1) the age to start solid foods in healthy term infants, (2) what solid foods to start at what age and the reasons for the same, and (3) the best age, in days or weeks, for circumcision and the reasons for same.*

Allison B. Willeford, M.D., Molalla, Ore.

Answer.—1. The pendulum is swinging back from the very early starting of solid foods in healthy infants to a more moderate view. The reason is that infants thrive nutritionally on both regimens and there is less likelihood of digestion upsets. Under age 3 months, if the infant is on a proper composition milk formula, solid foods are not necessary until the infant acts hungry and demands them. This varies from infant to infant, some not being satisfied with the milk formula as young as 2 weeks of age, although the average is about 2 months. 2. Cereals are usually the first solid food started because they are easily digested and high in calories. In infants showing a dislike for cereal, strained fruits, such as applesauce, pears, or bananas may be mixed with the cereal or temporarily substituted for it. Strained vegetables, meats, or mixtures of them usually are introduced at age 3 months, in some infants earlier. These foods provide such body needs as iron, other minerals, vitamins, and proteins. Egg yolks and infant desserts, such as gelatin, custards and pudding may be started between the age of 4 and 5 months. The time-honored age for circumcision is about the end of the first week of life. The theoretical reason for this is that the coagulation of the infant's blood is somewhat diminished after birth but returns to normal by the 6th to 8th day of life. However, in some hospitals circumcision is done soon after birth on the first day of life without any unusual amount of bleeding.

CONVULSIONS OF CHILDHOOD

To the Editor:—*I would like information about fatal asphyxia resulting from the convulsions of childhood that are caused by rapidly rising temperature. Physicians generally seem to regard these convulsions as more alarming to parents than dangerous to the child. Having seen a few cases where the child became blue and limp and showed no sign of resuming respiration without aid. I wonder if these convulsions are entirely without mortality. I am not referring to convulsions from disease or injury primarily involving the central nervous system.*

Hugh A. Thompson, M.D., Raleigh, N. C.

Answer.—Death resulting from asphyxia during a febrile convulsion must be rare, if it occurs. However, it has been shown that febrile convulsions may involve more or less severe brain damage. About 5 to 10% of the children show residual paralysis, electroencephalogram changes, or other signs of brain injury, usually clearing up promptly but sometimes lasting several days or months. Various reports have indicated that from 5% to as high as 60% of children who suffered febrile convulsions developed epilepsy in later life. Certainly there is a direct relation between the duration and severity of the initial febrile convulsion and development of epilepsy later. Therefore, it is important that the convulsion be stopped as soon as possible with sedatives and measures to reduce the fever.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

BUCKWHEAT POISONING

To the Editor:—*I would like information on fagopyrism (buckwheat poisoning).*

H. Wayne Glotfelty, M.D., Piqua, Ohio.

Answer.—Foremostly, fagopyrism is a disease of farm animals, notably cattle and sheep, attributed to photodynamic action but always subsequent to feeding on some member of fagopyrum, the genus to which the buckwheats belong. Much effort has been exerted to determine the precise photosensitizing agent, but this has not been accomplished. This agent appears to exist in the roots, stems, flowers, and grain of the buckwheats. Animals fed on buckwheat and then kept in semidarkness or total darkness do not develop the disease. Mild damage is reflected in skin surface injury. Severity may be apparent through intestinal and pulmonary hemorrhage, enteritis, bony necrosis, emaciation, and other manifestations. That fagopyrism may occur in man is doubted despite the tradition that buckwheat should not be eaten during the summer months less "buckwheat rash" appear. It is probably true that man is susceptible to the action of buckwheat in the provocation of light sensitivity, but the quantity ingested through the judicious consumption of buckwheat cakes appears to be insufficient. Extensive information may be found in Bl[illegible] "Photodynamic Action and Diseases Caused by Light", (American Chemical Society Monograph Series, no. 85, New York, Reinhold Publishing Corporation, 1941).

MONOCULAR DIPLOPIA

To the Editor:—*What are the causes of monocular diplopia?*

M.D., Pennsylvania.

Answer.—The causes of monocular diplopia are discussed by Duke-Elder (Textbook of Ophthalmology, vol. 4, London, England, Henry Kimptom, 1949, p. 3866). It may be due to (1) optical causes in the eye, (2) simultaneous conscious appreciation of two systems of visual projection, or (3) dissociative cerebral lesions. Optical causes include irregular corneal astigmatism, parenchymatous keratitis, and other influences disturbing corneal refraction; a double pupil or an iridodialysis; dissociation or subluxation of the lens; refractive irregularities due to incipient cataracts; fluid clefts or developmental anomalies of the lens; air bubbles, transparent foreign bodies, crystals, or cysts in the aqueous or vitreous fluid; and retinal detachment, particularly if the retina becomes inverted. Projectional diplopia arises from abnormal retinal correspondence, either through a single retinal image acquiring two associations of direction or by the image seen by the eccentric retinal point around which an abnormal system of correspondence is centered, being brought into consciousness simultaneously with the macular image. Central uniocular diplopia may occur in hemianopia and hemiamblyopia due to a calcarine lesion or to paresis of the extraocular muscles in association with a gross cerebral lesion.

FOODS RICH IN ARGININE

To the Editor:—*I would like a list of the foods rich in arginine. Is there any normal or abnormal process in the body that can increase the production of arginine endogenously? Have the organisms, chemicals, or enzymes been identified that produce the putrefaction of albuminous material in the intestinal tract, and can such a process take place in other tissues of the living organism? Are there any chemicals, drugs, or antienzymes known that may hinder or prevent such changes in albumen or proteins?*

Mitchell Burdick, M.D., Erie, Pa.

Answer.—Most proteins contain a good amount of arginine. Gelatin is one of the richest sources, with meat, legumes, eggs, and cereal proteins following in order. Arginine can be synthesized in the body, but the rate of synthesis is not sufficient to meet the requirements in rapidly growing animals. The organisms involved in the putrefaction of protein material in the intestinal tract are the coliform organisms. The enzymes involved are the decarboxylases and the deaminases. These enzymes have been studied largely in bacteria, but they have also been found in animal tissues. These enzymes are undoubtedly utilized in the normal metabolism of amino acids, but it is possible that under abnormal conditions compounds may be produced that have a deleterious effect. Little work has been done on the antienzymes related to these mechanisms. It is, of course, possible to reduce the number of coliforms in the intestinal tract with sulfonamides and antibiotics.

PENICILLIN

To the Editor:—*A 25-year-old man has been given occasional 10-day courses of procaine penicillin in sesame oil with aluminum monostearate injected every other day. There have been several courses a year for six years; it is given prophylactically to prevent otitis media, which never fails to occur as a complication of any head cold unless it be prevented by penicillin. Careful study has been made of the nasopharynx, and no further treatment is possible directed toward avoiding the susceptibility to ear complications. This man has never shown any untoward effects from penicillin. What is the likelihood of sensitization occurring from this therapy in the future? Several of the injection sites still have a palpable bump. Is this caused by the oil medium, and is there any danger of a malignant change in it?*

Edme Regnier, M.D., Salem, Mass.

Answer.—There is no clear-cut, statistical answer relative to the likelihood of the given patient developing sensitivity to procaine penicillin. Various reports are extant relative to sensitization of groups of patients to penicillin. These range from 3 to 10% when all reactions of sensitization are taken into account. It appears from certain of the reports that the more frequent the repetition of courses of penicillin in a patient, the greater the likelihood of sensitization. Definite information is available that people who are allergic to a number of other sensitizing substances become more easily sensitized to penicillin than do those patients who have no allergic history. Also, it is known that when penicillin is used topically the chances of sensitization appear to be greater. The "bumps" that have been described probably represent the characteristic action of the tissues toward certain vegetable oils. These occur not infrequently when any therapeutic agent containing oil is used intramuscularly. As far as known, there have been no reports of malignant lesions developing in these granulomas that follow the injection of penicillin in oil. It can be suggested that if benzathine penicillin is used instead of procaine penicillin in oil the development of these will not take place.

PREVENTION OF BLOCKING OF INDWELLING CATHETER

To the Editor:—*In* The Journal, *Aug. 6, 1955, page 1329, a question was asked regarding the formula for irrigating solution to use in an indwelling catheter in the urinary bladder to prevent blocking by deposition of crystals. I would agree with the answer but I do not feel that it is complete. Dr. Suby of Boston has been working for a number of years with various solutions with the aim of trying to dissolve urinary calculi. He contributed much to our information. His solution G is very useful in irrigating indwelling catheters to decrease the amount of blockage that takes place by the deposition of crystals. Many people will tolerate a catheter or a suprapubic tube for a period of time, but, sooner or later, urinary salts are deposited on the lining of the tube and, if allowed to go long enough, may completely block the lumen. By the use of Suby's solution G, while this cannot be entirely prevented for an indefinite period of time, still it may be slowed down so that the tube remains clean and free of crystals for a much longer period than it would be without them. Solution G contains citric acid monohydrate, 32.5 gm.; magnesium oxide, anhydrous, 3.84 gm.; sodium carbonate, anhydrous, 4.37 gm.; and distilled water, 1,000 cc. The reaction of the solution is pH 4. One must remember that to irrigate the bladder two or three times a day with an Asepto syringe and solution may cause the bladder to become irritable as a result of this acid pH. This may produce some slight tendency to bladder spasm and even on occasion some blood in the irrigating fluid; however, this will usually subside if the irrigations are stopped for two or three days and then resumed.*

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RESUSCITATION OF THE NEWBORN INFANT

Ralph M. Tovell, M.D., William K. Bannister, M.D.
and
David M. Little, M.D., Hartford, Conn.

This discussion concerns the role of oxygen and carbon dioxide in resuscitation of the newborn infant and the action of analeptic drugs and antidotes for analgesics and hypnotics administered to the mother during labor. Asphyxia neonatorium is a chemical phenomenon associated with a decrease in the concentration of oxygen, an increased tension of carbon dioxide, a marked increase in lactic acid, and a decrease in the pH of the fetal blood. In the normal newborn infant, the arterial oxygen capacity is high (20.8 vol. %), the arterial oxygen content low (10.5 vol. %), and the arterial oxygen saturation, therefore, low (50.5%); in asphyxia neonatorum, the oxygen content of the blood may fall to less than 1 vol. % in fatal instances and the oxygen saturation may be between 0.5 and 4.0%. The lactic acid content of the blood of the normal newborn infant is 35 mg. per 100 cc., but under conditions of asphyxia this may rise to from 85 to 90 mg. per 100 cc., which indicates a definite endogenous production. The carbon dioxide tension of the blood, which is normally 32 mm. Hg in the newborn infant, rises to twice that value in asphyxia neonatorum, and at the same time the carbon dioxide content falls to low levels as a result of its displacement from base by the large amount of lactic acid in the blood. The pH of the blood, normally 7.35 in the newborn infant, falls to 7.05, the lower level compatible with life, and may even fall below 7.0. Thus, although the changes in lactic acid content, pH, and carbon dioxide tension are marked, these changes are secondary. The primary chemical change in asphyxia neonatorum is the extreme reduction in the oxygen content of the infant's blood.

USE OF OXYGEN AND CARBON DIOXIDE

Since the transport of oxygen to the depressed cells of the respiratory center of the newborn infant is the object of resuscitation, this process may be aided by providing an atmosphere high in oxygen for the baby who is trying to breathe and forcing it, in controlled fashion, into the unexpanded lungs where apnea is in evidence. Oxygen, therefore, may be considered an agent for supporting cerebral activity and the medium for providing an expansile force to collapsed and cohesive alveoli. If, as Dr. Potter maintains in her discussion of the state of the lungs at birth (this issue, page 1341), the newborn lung is rarely the cause of asphyxia in babies of over 28 weeks' gestation, one is in essence treating the cells of the respiratory center and the syncytium of cardiac muscular fibers pumping blood and oxygen to the brain. For sake of discussion, it may be presumed that the myocardium and not the brain is the critical tissue in resuscitation, for a failing circulation will transport less and less oxygen to the brain no matter how well the infant's lungs are supplied with it. The thesis that hypoxia depresses cardiac activity more readily than it does cerebral activity may have credence. The best index for evaluating the progress of an asphyxiated baby is the character and rate of the heartbeat. So long as it maintains a rapid regular rate, resuscitation is being conducted along effective lines. When the heart falters, however, as exemplified by either an extremely rapid rate or by bradycardia, the resuscitator must quickly realize that his procedures are less effective than they should be. The important thing is that oxygen be administered effectively and early. Appropriate equipment for administration of oxygen should be available in every delivery room, and there is no excuse for procrastination before using it, whether the newborn infant is asphyxiated or not.

Carbon dioxide is a gaseous agent, the administration of which has been widely advocated in the past as a powerful stimulant to the respiratory center. It is universally accepted that carbon dioxide in soluble form in the blood is the main regulator of breathing to the healthy brain. It is also known that carbon dioxide when in high concentration in the plasma becomes an anesthetic agent. It has been previously shown that the concentration of carbon dioxide in an asphyxiated baby's blood is higher than normal. It has been recognized that administration of carbon dioxide along with the oxygen

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From the Department of Anesthesiology, Hartford Hospital.

Read in the Panel Discussion on Resuscitation of the Newborn Infant before the Joint Meeting of the Section on Anesthesiology, the Section on Diseases of the Chest, the Section on General Practice, the Section on Obstetrics and Gynecology, and the Section on Pediatrics at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 9, 1955.

used for support of life in the newborn infant fails to stimulate a respiratory center already subjected to an abnormally high concentration of carbon dioxide in plasma. Although in past years carbon dioxide was frequently employed in concentrations from 3 to 7%, in most maternity hospitals its use has been abandoned because of its ineffectiveness and because of its real hazards.

USE OF ANALEPTIC DRUGS

The administration of the analeptic drugs pentylenetetrazol (Metrazol), nikethamide (Coramine), and alpha-lobeline during infant resuscitation can produce a mild and fleeting stimulation. Usually only a few uncoordinated gasps ensue. The danger of their employment lies in the fact that they can be potent convulsive agents. If an asphyxiated baby has a convulsion, precious oxygen is consumed and death follows immediately. The dose of an analeptic that produces effective stimulation of the respiratory center is so close to the convulsant dose that there is little margin of safety. Circulatory failure that accompanies asphyxia will be responsible for slow absorption of any analeptic administered. The resuscitator, in the belief that more drug is required to obtain or maintain an effect, may repeat the dose. In the presence of an improving circulation, the full effect of the total amount of analeptic given may reach the brain in an overwhelming dose, with the result that a convulsion occurs and death follows. The real tragedy is that this dire event occurs after improvement has been effected. For these reasons analeptics should be discarded in the treatment of asphyxia.

It has been stated that analgesia for mothers produces some degree of depression for the newborn infant. The administration of nalorphine (Nalline) gives some promise of combatting the effects of analgesic drugs administered to mothers during labor. After the administration of morphine, meperidine (Demerol), or methadone, nalorphine has a specific action toward improvement of respiratory and circulatory function. It has no salutary effect on the depression produced by the barbiturates. When it is given to subjects who are not depressed by a narcotic drug, it may act like morphine and produce a depressant effect on respiration. In those instances where respiratory depression is due to the barbiturate rather than to the narcotic that has been given as well, the administration of nalorphine may be productive of a convulsion. These hazards must be kept in mind. It is possible that the administration of nalorphine in doses of 5 or 10 mg. to the mother 5 or 10 minutes prior to delivery may have a salutary effect in combatting respiratory depression in the newborn infant. It will have no effect if the depression of the newborn infant is due to the barbiturates given to the mother or if the depression is due to forces to which the newborn infant was subjected during labor and delivery. Therefore the resuscitator should place no reliance on the action of nalorphine.

COMMENT

If the armamentarium for the treatment of asphyxia neonatorum seems short, consisting as it does of establishing an airway and administering oxygen, a high rate of salvage can be achieved. The most important factor is the experience and judgment of the resuscitator. If he is forewarned of danger, if he has his equipment assembled and ready for use, and if he uses his chosen method of resuscitation well, successful resuscitation will in the majority of instances be his reward. Babies who have failed to respond to resuscitation for as long as 45 minutes subsequently may leave the hospital with every evidence of being normal infants. What the future holds for these infants is conjectural, but while life persists one must try to preserve it. An attitude of defeatism should never be allowed to prevail.

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ROLE OF THE LARYNGOLOGIST IN RESUSCITATION OF THE NEWBORN INFANT

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As a member of the medical-surgical team caring for the newborn infant, the laryngologist is a consultant who is called when the question of airway obstruction arises. He is responsible for the establishment and maintenance of a clear airway; he must determine the point of obstruction when obstruction exists and either remove it or circumvent it. If obstruction is not causing the asphyxia that is present, he must be able to give assurance that the airway is clear, if this is questioned. As a rule, the laryngologist is called after it is apparent that the infant has not responded to the usual methods of resuscitation or aspiration of secretions. This varies in time after delivery from a few minutes to a few days, depending on a number of factors but most directly upon the severity of the infant's condition.

TYPES OF OBSTRUCTION

The most frequent consultation received is a request to aspirate secretions or to aspirate a "mucous plug" causing a lobar or unilateral atelectasis. In this regard, it should be stated that in my experience, the pressure of excessive mucus in the tracheobronchial tree or the presence of unilateral or anatomically lobar atelectasis indicates additional, more basic pathology. The diagnosis of the basic pathology, i. e., the cause of the excessive mucus or atelectasis, is as important, if not more so, than the aspiration itself. In some instances, such as pharyngeal and laryngeal paralysis associated with massive cerebral hemorrhage, bronchoscopic aspiration may

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Read in the Panel Discussion on Resuscitation of the Newborn Infant before the Joint Meeting of the Section on Anesthesiology, the Section on Diseases of the Chest, the Section on General Practice, the Section on Obstretrics and Gynecology, and the Section on Pediatrics at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 9, 1955.

actually be contraindicated. In other cases the diagnostic findings may indicate urgent, immediate surgical intervention such as a tracheotomy, a thoracotomy, or a repair of a tracheoesophageal fistula.

Because of these possibilities, a rapid differential diagnosis is necessary in the cyanotic infant suspected of having respiratory obstruction. It should first be determined whether the infant's cyanosis is on the basis of a central nervous system lesion, a cardiac lesion, or respiratory tract lesion. If there is a central nervous system lesion, the reflexes are severely impaired or absent and the infant is flaccid and unresponsive. With these findings, one should reduce instrumentation to a minimum except for the simplest pharyngeal suction. The insertion of a small intratracheal tube will establish an airway and permit occasional tracheal aspiration. But repeated blind or even direct aspiration efforts are only too likely to increase the cerebral damage. If cyanosis is due to a cardiac lesion, the cyanosis is not associated with respiratory effort; other signs would be a cardiac murmur, irregularity in rate or rhythm, and enlargement or displacement of the heart. If the respiratory system is responsible, respirations are usually labored; dyspnea is associated with hard breathing and accompanied by the signs of air hunger such as suprasternal and epigastric indrawing, restlessness, wheezing, or stridor.

If the previous differentiation has indicated the infant's cyanosis is not on a central nervous system or a cardiac basis but is probably due to a lesion in the respiratory system, attention is then directed to further localization in three possible sites: the pleural cavity, the lung, or the airway. A chest x-ray examination will assist in this differentiation and should include a lateral film of the neck and chest as well as the routine posterioanterior flat film. Pulmonary lesions such as serious congenital anomalies, patchy or lobar atelectasis, areas of pneumonic consolidation, or localized emphysema are more clearly identified on the chest film than by physical examination. Pleural fluid, on the other hand, is generally found or eliminated from further consideration by the physical signs. However, spontaneous pneumothorax in the newborn may be overlooked on physical examination and because it produces all the signs and symptoms of acute respiratory tract obstruction may mistakenly be treated as such. Thus, the films may accurately direct a bronchoscopic examination or therapeutic aspiration of a specific area or bronchus; conversely, they may show findings such as a pneumonia or a pneumothorax that would contraindicate laryngoscopy or bronchoscopy.

If, however, the examination to this point has indicated that the lesion is in the respiratory tract and the pleural cavities and lungs have been eliminated as possible sites, effort is directed toward localization within the airway itself. Again, for purposes of differentiation, the airway may be divided into three general areas of possible obstruction: nasopharyngeal, laryngeal, or tracheobronchial. Here rapid differentiation may be based largely on the character of the voice or cry. A stertorous, rasping inspiratory sound characterizes the high obstruction associated with choanal atresia, pharyngeal paralysis, micrognathia, or a thyroglossal duct cyst. Nursing is associated with episodes of cyanosis because the nursing infant must use the postnasal and pharyngeal airway. Postnasal obstruction is determined by the inability to pass a small catheter through the nose into the pharynx; pharyngeal paralysis by the lack of a gag reflex; and a thyroglossal duct cyst by palpation of the base of the tongue. In conditions in which the tongue itself causes the obstruction, such as micrognathia or macroglossia, relief of obstruction is immediately apparent if the tongue is held forward with a gauze sponge.

Respiratory obstruction in the newborn infant due to a laryngeal lesion is characterized by rapid, labored breathing with indrawing in the suprasternal notch and epigastrium, and, most significant, an abnormal character of the cry, which may be weak, aspirate, husky, or absent. Congenital laryngeal webs or cysts, subglottic stenosis, and unilateral or bilateral paralysis of the larynx associated with cerebral agenesis will produce these changes in the cry. Direct laryngoscopy is essential in establishing the diagnosis, but before proceeding with this examination one should be prepared to carry out intralaryngeal procedures such as aspirating the contents of an obstructing cyst to establish an airway if obstruction is found. The passage through the larynx of an infant bronchoscope with oxygen attached is the most rapid means of establishing the airway under these circumstances. If necessary, it may then be maintained by a tracheotomy.

If the obstruction is in the trachea or bronchi, the signs are the same as for higher obstruction, but the cry is clear. X-rays demonstrating a unilateral obstructive emphysema or atelectasis make it imperative that a bronchoscopic examination be made. An obstructing bronchial plug and a pulmonary agenesis give identical physical and x-ray findings; only direct inspection differentiates them, when either the plug is aspirated or the absence of the bronchus is demonstrated. Obstruction due to excessive secretions not relieved by simple tracheal aspiration generally indicates a pharyngeal paralysis or a congenital esophageal anomaly such as congenital esophageal stenosis or atresia with or without a tracheoesophageal fistula. Tracheal or bronchial webs are rare but respond to dilatation. If external tracheal or bronchial compression is seen, or the extremely interesting idiopathic lobar emphysema is found responsible for the obstructive phenomena, immediate thoracic surgical consultation is indicated.

SUMMARY

In summary, the following statements are made in answer to the question "For what clinical situations should the laryngologist be called?" 1. In respiratory obstruction. Respiratory effort without adequate air intake, particularly if associated with a hoarse or absent cry, indicates probable respiratory obstruction, which the laryngologist may be able to demonstrate and treat. 2. Aspiration. When the laryngologist is called for aspiration of excessive mucus from the pharynx and tracheobronchial tree, such lesions as cerebral agenesis or birth injury with associated pharyngeal and laryngeal paralysis should be considered as well as congenital esophageal anomalies with or without tracheoesophageal fistula. 3.

Atelectasis or emphysema. Lobar or total unilateral atelectasis or obstructive emphysema are oftener present on the basis of a congenital anomaly than due to a "mucous plug." However, it is futile to think a widespread, congenital atelectasis can be relieved by aspiration of a "mucous plug" if no rales are present in the chest. But since respiratory tract obstruction is fairly common, inspection in localized atelectasis or emphysema is essential.

Thus, the role of the laryngologist in resuscitation of the newborn infant is in establishing and maintaining an airway. His own studies should localize the lesion as far as possible. Examination of the cyanotic, dyspneic infant should determine first if the lesion is a central nervous system lesion, a cardiac lesion, or a respiratory tract lesion. If respiratory, is it pleural, pulmonary, or airway? If it is airway obstruction, is it nasopharyngeal, laryngeal, or tracheobronchial? Direct laryngoscopy and bronchoscopy are his special means of answering this last question. Proper newborn-size endoscopic instruments must be available. A tracheotomy may be necessary, and the endoscopic examination should not be made without adequate preparation for it, not because of the procedure itself, but because of the pathology that may be found responsible for the obstruction. Finally, while the most frequent consultation with the laryngologist in regard to newborn infants is a request to aspirate obstructing secretions, it is almost axiomatic that, if obstruction is severe enough or secretions copious enough to necessitate this consultation, some underlying congenital anomaly or birth injury is the basic pathology responsible for the infant's condition and not the secretions themselves.

700 N. Michigan (11).

EXPANSION OF THE LUNGS OF NEWBORN INFANTS

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The *normal newborn infant is able to expand his* lungs so easily that he seems not to struggle at all, and in a few minutes the oxygen saturation of his blood is over 90%. In the operating room, the anesthesiologist can maintain pulmonary ventilation during chest operations on newborn infants with ease. In the delivery room, however, one encounters, fortunately rather rarely, infants who cannot breathe adequately, and in such infants, artificial positive-pressure respiration is much less successful than in the operating room where normal lungs are dealt with. The difficulty seems to arise from three possible causes: 1. The lungs may be obstructed by debris. 2. The lungs may be too immature to expand well. 3. The normal neonatal lung may require more than the 15 cm. H_2O (11.5 mm. Hg) permitted on most positive-pressure resuscitation devices. Since the first two difficulties are discussed by others (see pages 1337-1340 and 1341-1342), I shall discuss pressures and volumes in expansion of the neonatal lung but at the same time emphasize that these factors obviously underlie other hindrances that may exist.

Observations by many workers indicate that the kind of neonatal lung seen at autopsy seldom can be expanded at 20 cm. H_2O air pressure. No one knows what pressure is needed in the case of the normal lung of an infant who survives, though it is known from the work of Smith and Chisholm[1] that the infant is capable of exerting over 40 cm. H_2O inflating pressure.

SHORT DURATION PRESSURES

Rat lungs that have been rendered totally atelectatic by oxygen breathing prior to tracheal occlusion seldom *open at 20 cm. H_2O and usually but not always will* open at 30 cm. It is not unlikely that the kind of lung one confronts in an infant who needs active resuscitation resembles both these rat lungs and those infant lungs studied by Wilson and Farber, so that, in a truly apneic infant, one would not expect success at conventional pressures. *To insure inflation, one should use pressures* at least over 30 cm. H_2O and probably up to 40 cm. Such pressures can be rendered safe by controlling their duration. The normal infant probably has a duration of inspiration of less than 0.75 second. Using a tracheal catheter, Apgar[2] has found that lungs are uninjured at pressures up to 50 cm. or even above exerted for half a second with one particular intratracheal tube. In rats, pressures of 40 cm. for 0.2 second are safe with a tracheal cannula of the correct size but not with a larger one. In all these calibrations, one must take into account the size of the orifice and the amount of expandable lung. If one advocates use of an intratracheal catheter, the size of the orifice is crucial. It is the volume of air, in relation to expandable lung, in the final analysis, which defines safety. Each operator must study his particular apparatus in the autopsy room with the utmost care.

Short duration pressures have two other advantages in addition to their safety. The first is that there is less impairment of venous return to the heart. Pressures exerted for several seconds must, especially in the case of an infant on the verge of shock, be exceedingly detrimental to cardiac output. Secondly, short, high pressures, similar to those exerted by the normal infant, decreased the amount of expansion of easily expandable parts of the lungs as compared with that of the more resistant areas. This point is clearly shown in experiments on paired rat lungs, one of which is normal and the other atelectatic. With a short period of increased intratracheal pressure at an adequate level, more uniform expansion is achieved.

Read in the Panel Discussion on Resuscitation of the Newborn Infant before the Joint Meeting of the Section on Anesthesiology, the Section on Diseases of the Chest, the Section on General Practice, the Section on Obstetrics and Gynecology, and the Section on Pediatrics at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 9, 1955.

[1] Smith, C. A., and Chisholm, T. C.: Intrapulmonary Pressures in Newborn Infants, J. Pediat. **20**: 338, 1942.

[2] Apgar, V.: *Personal communication to the author.*

CONCLUSIONS

No clinical studies have ever been performed on any large group of newborn infants, to my knowledge, that show a clear advantage of any particular method of resuscitation. I have a perfectly open mind on the question of whether infants left entirely alone might not do as well as those treated by any method. Such studies would be difficult, but I believe that those of us who work in centers where research can be carried out are obligated to settle this most confusing problem of infant resuscitation. My only plea is that, if one does believe in positive-pressure methods, he should apply them as physiologically as possible. By this I mean he should imitate the baby. A few initial "breaths" at say 30 to 40 cm. for short intervals, perhaps half a second, should be succeeded by conventional positive-pressure respiration. The fear of rupture is overrated. In my experience, rupture has occurred either as a result of the infant's own struggles or of gross disregard of physiological principles. Whatever apparatus or technique is chosen, the physician should practice on a dead subject.

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STATE OF THE LUNGS AT BIRTH

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The lungs, during intrauterine life, pass through two principal stages of development. The first, which occupies about the first half of fetal life, is a period of increasing elongation and ramification of an original bud arising from the entodermal tube. During this time cells differentiate into proximal tall columnar bronchial epithelium, intermediate cuboidal epithelium, and terminal actively growing buds made up of very large cells with prominent basal vacuoles. These terminal buds incite the local proliferation of mesoderm so that each elongating tubular branch becomes surrounded by a sheath of connective tissue. The lobular pattern is very prominent at this time, owing to the close investiture of the entoderm by mesoderm.

Throughout fetal life an increasing number of branches are produced; as they become more numerous their external surfaces become more closely approximated. The connective tissue sheaths lose their individuality and merge indistinguishably with those adjacent to them. The proportionate amount of space occupied by the connective tissue diminishes constantly during the last half of fetal life, and at term connective tissue is visible only as a very fine network supporting alveolar capillaries.

DEVELOPMENT OF LUNGS

The second phase of development is primarily one of vascularization. In the first stage the growing blood vessels follow the same pattern as the pulmonary tree but lie free in the mesoderm. As they proliferate they come to lie closer to the outer surfaces of the entodermal branches and near the middle of fetal life—about 18 weeks after conception when the fetus weighs from 300 to 350 gm.—the capillaries begin penetrating the heretofore continuous lining of the entodermal wall. Small knuckle-like capillary loops push aside adjacent cells and come to lie in direct contact with the lumens. Much of their surface is exposed to the potential air space.

This capillary penetration progresses rapidly after it once begins. It is accompanied by the elaboration of elastic fibers. The simultaneous growth of elastic fibers and capillaries is responsible for the gradual differentiation of alveolar ducts and alveoli. Eight to 10 weeks after penetration begins, the capillary bed in contact with the potential air space is sufficiently extensive to permit the fetus to oxygenate its own blood if delivered at this time. One of the main reasons why the end of the 28th week of gestation, when the fetus weighs about 1,000 gm., generally marks the dividing point between viability and nonviability is because only then does the number of blood vessels in direct contact with the potential air space permit adequate transmission of oxygen to the blood. The longer the fetus remains in the uterus, the more extensive vascularization becomes and the more readily oxygenation is accomplished.

The lung is anatomically the same in the mature fetus who has never breathed air as in the infant who has been breathing for several hours except for the caliber of the alveolar ducts and alveoli. Throughout intrauterine life lumens are present in all portions of the pulmonary tree. Under normal circumstances they are relatively small, but a definite pattern is visible and the inner surfaces of the walls are never completely approximated except as a result of postmortem degeneration. The lung is entirely ready in a mature fetus to permit transfer of oxygen into the blood in the pulmonary circulation immediately after birth and to function as adequately as it will at any age.

The respiratory center in the brain differentiates very early, and respiratory movements are among the first movements to be observed in the fetus. In a study of the lungs made several years ago on normal fetuses delivered by hysterotomy, I found it was necessary to compress the trachea in fetuses as small as 100 gm. if inspiration of air was to be prevented after they were removed from the uterus. There is no evidence that immaturity of the respiratory center is ever responsible for failure to breathe.

In the study just mentioned, Davis and I [1] showed that radiopaque material introduced into the amniotic fluid was invariably drawn into the lungs of fetuses weighing less than 400 gm. and that it was also inspired at term.

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Read in the Panel Discussion on Resuscitation of the Newborn Infant before the Joint Meeting of the Section on Anesthesiology, the Section on Diseases of the Chest, the Section on General Practice, the Section on Obstetrics and Gynecology, and the Section on Pediatrics at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 9, 1955.

The work on which this paper is based was supported in part by United States Public Health Service.

[1] Davis, M. E., and Potter, E. L.: Intrauterine Respiration of the Human Fetus, J. A. M. A. **131**: 1194 (Aug. 10) 1946.

(These were the only groups studied.) Although a few investigators still believe that any intrauterine respiratory activity is pathological, we demonstrated to our own satisfaction that respiratory movements occur normally during intrauterine life. There is no denying that anoxia can be responsible for excessive inspiration of amniotic fluid, but anoxia causes an abnormal type of activity and is responsible for much greater dilatation of alveoli than ever occurs under ordinary circumstances.

The normal infant at the time of birth has a normally functioning respiratory center, has lungs with a rich capillary bed ready to oxygenate its blood, has lumens in the pulmonary tree that are ready to be distended by the ingress of air, and, unless some pathological process prevents, its intrauterine respiratory activity will be directly continued into its extrauterine life. A normal infant will never fail to breathe after delivery.

The word "resuscitation" as used by most persons seems to imply that respiration is a response to some kind of a trigger mechanism and that to resuscitate an infant they must pull this trigger by spanking or administration of drugs or rocking or inflating the lungs or some other procedure.

Resuscitation of adults consists of supplying oxygen by periodic insufflation of the lungs until the effects of whatever has been responsible for apnea has worn off. Resuscitation of the newborn infant consist of exactly the same thing. If the infant does not breathe at birth, oxygen must be supplied until the effect of whatever was responsible for its failure to breathe has ceased to act. The most satisfactory resuscitation consequently is accomplished by whatever method of introducing oxygen into the lungs most closely simulates the effect that could be produced by the infant's own efforts. The periodic introduction of an oxygen-rich gas directly into the trachea at a pressure sufficient to permit it to pass from the bronchi into the alveoli but sufficiently controlled to prevent rupture of any part of the lung by hyperdistention is the ideal.

REASONS WHY INFANT DOES NOT BREATHE

There are many reasons why an infant does not breathe, but by far the commonest are cytotoxic states of the respiratory center caused by anoxia, by depressant drugs, or by other toxic states in the mother. Some of these effects are temporary, and it is to provide oxygen until such time as that effect shall have passed that resuscitation is undertaken.

The mouth and the pharynx of the infant are usually full of amniotic fluid and mucus at birth, and these are usually inspired without ill-effect with the first breath. Unless an infant has been anoxic for a prolonged period before birth so that its alveoli have been distended by debris from the amniotic fluid, there will be no direct mechanical obstruction to breathing. Even then the effect on the brain of the anoxia that was responsible for excessive intrauterine activity is more important in failure to breathe than is the direct effect on the lungs. Plugging of a bronchus with mucus sufficient to interfere with establishment of extrauterine respiration is of almost unknown occurrence. Except in malformations or the more massive intrauterine pneumonias, a local disturbance in the lungs is almost never responsible for immediate postnatal apnea. All infants who do not breathe are ill; this must never be forgotten when treatment is instituted.

5841 Maryland Ave. (37).

INTRAMUSCULAR USE OF DIMENHYDRINATE (DRAMAMINE) TO CONTROL POSTOPERATIVE VOMITING

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and
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In November, 1951, we presented a paper in which it was stated that intramuscularly administered dimenhydrinate (Dramamine) seemed to reduce postoperative vomiting by approximately 50%. At that time it was stated, "It is hoped that further interest in this subject will be stimulated so that an extensive evaluation of the drug may be made." [1] Certain objections have been raised regarding the validity of the conclusions of our preliminary report and those of others describing the efficacy of dimenhydrinate for control of postoperative vomiting.[2] The main objections that have been raised were that (1) if the study method described in this article is to be significant, many thousands of cases must be reported, and (2) no "placebo" control series appeared. Other minor objections included the facts that (1) there was no note made of the amount of vomiting past 50 cc., which was set as criterion for vomiting; (2) the character of the vomitus, i. e., bile-stained or clear, was not described; (3) our previous article did not specify in enough detail how the study was carried out nor did it note the personnel involved; and (4) the possibility of prejudice and bias could have existed. These are all justifiable criticisms—ones that we hope are satisfactorily answered by this report, which includes a review of the use of dimenhydrinate in 8,849 cases as well as the results of a "double-blind" series of 394 cases in which neither the anesthesia department, the floor nurses, nor the surgeons at our institution knew if the solutions injected did or did not contain dimenhydrinate.

METHOD OF STUDY

The over-all incidence of vomiting for nine general classes of anesthetic techniques most frequently used at

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This study was made possible through the cooperation of G. D. Searle & Co., Chicago.

[1] Moore, D. C.; Anderson, L.; Wheeler, G., and Scheidt, J.: The Use of Parenteral Dramamine to Control Postoperative Vomiting: A Report of 1192 Cases, Anesthesiology 13: 354-360, 1952.

our institution was established by a six months' study of cases, during periods in which dimenhydrinate was not employed (table 1). This served as a control. Then a standard method of administration was established, termed the "dimenhydrinate routine," by the hospital staff. This consists of administration of 1 cc. (50 mg.) of dimenhydrinate intramuscularly on call to surgery, of 1 cc. (50 mg.) intramuscularly on return from surgery, and then of 1 cc. (50 mg.) intramuscularly every four hours for four doses. All patients who were to have an anesthetic regardless of the magnitude of surgery and who fell into the nine general classes of anesthetic techniques listed in table 1 received the "dimenhydrinate routine." It is emphasized that no attempt at selection of cases was made, nor were there any alterations in the routine use of opiates preoperatively and postoperatively. The only time the dosage of dimenhydrinate was changed was for children under 5 years of age, in which instances the dosages were reduced to 25 mg. The only cases in which it was purposely omitted were in children under 1½ years of age and in tonsillectomies. Patients subjected to tonsillectomies were not included in this study, since they were admitted to the hospital the morning of the scheduled operation and dismissed that afternoon; therefore, the preoperative visit as well as postoperative follow-up was virtually impossible.

All patients in these series were seen before operation, within the first 24 hours after operation, and daily thereafter. They were questioned as to whether or not they had vomited and asked to estimate the amount and to describe such things as the character of the emesis, its color, and its viscosity. Their responses were checked against the nurses' notes and comments as well as observed contents of the emesis basin and stains on the bed linens. Vomiting was defined as the emesis of any material that measured 50 cc. or more in volume. Spitting up of mucus or bile was not considered vomiting in this study unless it exceeded this stipulated amount. The Chicago key-sort anesthesia card was used for tabulation. With this general standard procedure for the study of dimenhydrinate established, two series of studies were conducted in the following manner.

Dimenhydrinate Series.—For five years (1949 to 1954), except for the periods during which control series and the double-blind series were conducted, a solution known to contain 50 mg. of dimenhydrinate per cubic centimeter of solvent was given by the routine dimenhydrinate technique to 8,849 patients. These patients were observed by both the attending staff and the residents of the anesthesia department as well as the nursing staff. The greater majority of patients in this series were not told that they were receiving a drug to control postoperative vomiting.

Double-Blind Series.—Although 8,849 cases would seem to be a significant number of cases, it was felt that to rule out all possibilities of prejudice a double-blind study should be conducted. Arrangements were made, therefore, to prepare 20 numbered boxes, each containing 25 5-cc. rubber-stoppered vials; the number of the box in which it was originally received appeared on the dimenhydrinate label of each vial. The identity of the solution in each container remained unknown to any of the hospital staff until completion of the study and tabulation of the results.

From Aug. 1, 1954, to Oct. 10, 1954, these solutions were administered to the patients by the established routine method, care being taken to see that when a patient was started on one number that all the injections given the patient were from a bottle containing that specific number. As a matter of fact, no hospital floor had more than one box at any one time. The boxes containing the bottles of solution were passed out to the surgical floors of the Virginia Mason Hospital at random, no effort being made to place specific numbers on the same floor; for example, the even numbers were not given to one floor and the odd numbers put on another.

The patients were visited by the residents and staff physicians of the anesthesia department as stated above. After the first week of the study one of the attending staff anesthesiologists (D. C. M.) did not participate actively in these visits to the patients. His main part in the study was its supervision and writing the report. He was the only one who had participated in the first study, and it was felt that this would eliminate any criticism of bias of the report. Therefore, eight different physicians visited the patients to check whether or not emesis had occurred. They charted on the key-sort cards the number of the box from which the ampul was taken and the amount and the character of the vomiting. The charts were not reviewed and the incidence of vomiting with each number was not determined until the entire series was terminated.

TABLE 1.—*Control Series in Study of Dimenhydrinate*

Anesthesia	No. of Cases	No. Who Vomited	Rate of Vomiting, %
Total Procedures	1,502	339	22.6
Regional block (other than those listed below)	178	9	5.1
Intercostal deep splanchnic	89	9	10.1
Cervical block	44	20	45.5
Ether and N_2O	291	106	36.4
Cyclopropane	131	51	39.0
Spinal	331	71	21.4
Thiopental (Pentothal), N_2O, curare	125	23	18.4
Thiopental sodium	251	44	17.5
Epidural			
Caudal area	62	6	9.8
Lumbar area	0	0	0.0

RESULTS

The incidence of vomiting in the control series of 1,502 patients that did not receive the dimenhydrinate by any method was 22.6% (table 1). In the 8,849 cases in

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2. Moore and associates.[1] Rubin, A., and Rubin, H. M.: The Effect of Dramamine upon Postoperative Nausea and Vomiting: A Controlled Study of 250 Consecutive Surgical Patients, Surg. Gynec. & Obst. **92**: 415-418, 1951. Hume, R. H., and Wilner, W. K., Jr.: The Use of Dramamine in Control of Postoperative Nausea and Vomiting, Anesthesiology **13**: 302-305, 1952. Millett, D. K., and Henry, M. O.: Prevention of Postanesthetic Nausea with Dimenhydrinate (Dramamine®), Minnesota Med. **34**: 1096-1097, 1951. Ashworth, H. K.: Prevention and Treatment of Post-Operative Vomiting, M. Press **227**: 278-279, 1952. Elkins, R. F.: Pre- and Postoperative Care in Proctology, South. M. J. **46**: 182-184, 1953. Heiser, J. H.: Postanesthetic Nausea and Vomiting, Oral Surg. **5**: 1213-1222, 1952. Jackson, B. R.: Elective Proctologic Surgery in the Aged, South. M. J. **46**: 442-446, 1953. Koontz, A. R.: Modern Management of Inguinal Hernia, GP **7**: 43-55, 1953. Wolfe, W. B.: The Use of "Dramamine" in the Prevention of Postoperative Nausea and Vomiting, Ann. Surg. **136**: 261-266, 1952. Rudolph, C. J., and Krueger, J. E.: Dramamine for Toxic Labyrinthitis Induced by Anesthetic Agent, J. Indiana M. A. **45**: 1242-1243, 1952. Armer, A. L.: Control of Postoperative Nausea with the Use of Dimenhydrinate, J. Oral Surg. **10**: 225-226, 1952.

which the dimenhydrinate routine was used and each cubic centimeter of the solution known to contain 50 mg. of dimenhydrinate, the incidence of vomiting was 13.0% (table 2).

After the results obtained with the specially labeled material prepared for the double-blind series was tabulated, the key to the identity of the solution in each vial was received. Decoding of the tabulated information revealed the following results: 1. Of the 199 patients who received the solvent only by the routine method, 48 vomited, a percentage of 24.1 (table 3). 2. Of the 195 patients who received this routine with solutions containing dimenhydrinate, only 26 vomited, a percentage of 13.3 (table 4).

TABLE 2.—*Results in Series with Dimenhydrinate*

Anesthesia	No. of Cases	No. Who Vomited	Rate of Vomiting, %
Total procedures	8,849	1,149	13.0
Regional block (other than those listed below)	652	33	5.1
Intercostal deep splanchnic	534	29	5.4
Cervical block	302	47	15.6
Ether and N_2O	1,936	459	23.7
Cyclopropane	309	49	15.9
Spinal	1,404	130	9.3
Thiopental (Pentothal), N_2O, curare	1,707	232	13.6
Thiopental sodium	768	43	5.6
Epidural			
Caudal area	389	25	6.4
Lumbar area	848	102	12.0

TABLE 3.—*Results in Double-Blind Series with No Dimenhydrinate*

Anesthesia	No. of Cases	No. Who Vomited	Rate of Vomiting, %
Total Procedures	199	48	24.1
Regional block (other than those listed below)	17	3	17.6
Intercostal deep splanchnic	17	5	29.4
Cervical block	4	2	50.0
Ether and N_2O	38	9	23.7
Cyclopropane	2	1	50.0
Spinal	28	7	25.0
Thiopental (Pentothal), N_2O, curare	40	7	17.5
Thiopental sodium	14	2	14.3
Epidural			
Caudal area	13	4	30.8
Lumbar area	26	7	26.9

TABLE 4.—*Results in Double-Blind Series with Dimenhydrinate*

Anesthesia	No. of Cases	No. Who Vomited	Rate of Vomiting, %
Total Procedures	195	26	13.3
Regional block (other than those listed below)	9	0	0
Intercostal deep splanchnic	14	2	14.3
Cervical block	9	3	33.3
Ether and N_2O	55	14	25.5
Cyclopropane	0	0	0
Spinal	15	2	13.3
Thiopental (Pentothal), N_2O, curare	39	1	2.6
Thiopental sodium	18	0	0
Epidural			
Caudal area	8	0	0
Lumbar area	28	4	14.3

When a patient in this series vomited, he almost invariably vomited an amount far in excess of the 50 cc. volume, i. e., 200 to 500 cc. Most patients were permitted liquids on return from surgery as desired and food as tolerated. There was no correlation between the character of the vomitus and the amount vomited.

COMMENT

The significance of this report lies in the fact that the double-blind study (tables 3 and 4), which was conducted in such fashion that no one in the hospital knew what the bottles contained, paralleled so closely the results of the control series (table 1) and the series in which it was known that the dimenhydrinate, 50 mg. per cubic centimeter, was injected (table 2). In the control series (table 1) the incidence of vomiting was 22.6%, while that in the double-blind study (table 3) was 24.1% when solutions that did not contain dimenhydrinate were injected. In the series of 8,849 cases in which dimenhydrinate was injected, the incidence of vomiting was 13.0%. In the double-blind study it was 13.3% when solutions containing 50 mg. of dimenhydrinate per cubic centimeter were administered. These figures are in close agreement and seem to be well within the limit of experimental error.

Perhaps it could be argued that the ideal method for this study would have been to give the solutions only to patients receiving ether as the primary agent, since the incidence of vomiting is high following its administration. Also, it might have been better had all the patients in the study had the anesthetic administered by one anesthesiologist and after surgery been returned to only one ward where specially instructed nurses were in charge. However, we do not believe this is true, because if a drug is to be of value in postoperative vomiting it must control the over-all incidence of postoperative emesis irrespective of the anesthetic method or agent used and the ability of the personnel involved. It is our feeling that there are so many variables that may result in vomiting that such a narrow study might not be as significant. Also, it has been our experience that patients, who have not had the benefit of preoperative preparation and who have received either a regional nerve block or a small amount of thiopental (Pentothal) often vomit, although these techniques are thought to be associated with a low incidence of vomiting.

The statistical significance of the results obtained in this study was evaluated by statisticians at the University of Washington as follows[3]:

> The data on the effectiveness of the use of Dramamine for postoperative vomiting were analyzed by means of the chi-square test. For the main group of trials, N=10,351, the probability was less than one in a hundred million that the drug did not significantly reduce the incidence of postoperative vomiting, i. e., $P<00000001$. In the "double-blind" trials, N=394, the probability was P=.009, or approximately nine chances in a thousand that the Dramamine was not effective. Since no difference in percent vomiting (22.6 vs. 24.1) was noted between the control groups, and likewise no differences between the treated groups (Dramamine, 13.0 vs. 13.3), the results were then combined. The combined data indicate that the chance that the Dramamine is not effective is less than one in a hundred million.

In the tables it will be noted that the primary anesthetic agent is the one under which the anesthetic procedure was classified. By primary agent we mean the agent used to obtain and maintain relaxation during the surgical procedure. Not uncommonly, we induce anesthesia with

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3. Bennett, B. M., and Pyke, R.: Personal communication to the authors.

sodium thiopental when we intend to use ether or cyclopropane as the primary anesthetic agent. A dose of 0.25 gm. (250 mg.) is seldom exceeded. If a procedure lasts over one hour, the thiopental probably has been detoxified by the end of the surgical procedure, so that it seldom has an influence on the postoperative period. With sodium thiopental, induction is smooth and much of the anoxia of induction, which may influence vomiting in the postoperative period, is avoided. However, since thiopental has been used as an induction agent equally in both the control and the dimenhydrinate series, its effect should not influence the results.

No tissue necrosis has occurred after the parenteral administration of dimenhydrinate. Since it belongs to the class of antihistaminic drugs, side-reactions might be expected to occur in some patients. To date, we have seen no reactions other than an occasional case of drowsiness. Because of this, some physicians may question the dose of preoperative and postoperative medication that should be used since a synergistic action may possibly occur. However, while this study was conducted, we did not vary the usual premedication dose of morphine, scopolamine, or a barbiturate.

SUMMARY

In this study dimenhydrinate (Dramamine) was given to 9,243 patients to control postoperative vomiting. In 394 of these cases a "double-blind" study was run to rule out personal prejudice or bias. The study conclusively proves that at the Virginia Mason Hospital the parenteral administration of dimenhydrinate has reduced the incidence of postoperative vomiting by approximately 50%.

1118 Ninth Ave. (1) (Dr. Moore).

SPREAD OF MAMMARY CARCINOMA

Philip B. Price, M.D., Salt Lake City

Cancer probably begins in some minutely localized spot, in a little nest of cells, possibly in a single cell, or, as some believe, multicentrically in a limited area. These abnormal cells multiply, gradually overcome the restraining influence of surrounding cells and tissues and the regulating forces that govern normal cells, push their way into new territory, and begin their lawless career. The optimum generation time of cancer cells is a matter of only a few hours. Two cells become four, four become eight, and so until in time there is a solid mass of millions of cells. As the lump grows, it does not gently push other structures aside, as a benign tumor does, but it infiltrates, invades, destroys, and replaces adjacent tissue. Sometimes this process works to the disadvantage of the tumor, for it may block its own blood supply and become necrotic at the center. This extension does not take place equally in all directions. The tumor grows most rapidly along lines of least resistance. Tumor cells in stroma are somewhat like soldiers trying to advance through a dense jungle. The going is tough and slow unless they strike an open trail; then they are able to stream rapidly along. The trails of the breast are the lymphatic vessels. When tumor cells invade a lymphatic vessel, they can progress more rapidly in the form of a solid cord of cells.

METHODS BY WHICH CELLS SPREAD

But extension of mass-growth, or proliferation along lymph channels, is not the only method of spread. Tumor cells also migrate. Most of us have erroneous, unrealistic concepts of tumor cells because we are used to seeing them through a microscope in fixed, stained preparations. Those rigid, dead, brightly colored cells are no more like living functioning cells than pickled cadavers in the dissecting room are like living people active in homes and places of business. A living cell is colorless; it breathes, eats, excretes, moves, and reproduces. It may elaborate complex and potent products. Some malignant cells are capable of ameboid movement. Like white blood cells, they can work their way through the delicate endothelium of lymphatic vessels and even, though with more difficulty, through the stronger walls of the blood capillaries. In the lumen of these vessels, independent malignant cells get swept along by the blood or lymph stream, or perhaps a small clump of cells will be slowly milked along the narrow channel. Sooner or later they reach a permanent lodging place. There, if conditions are suitable and nourishment is adequate, they multiply and form a new colony.

The lymphatic drainage of the breast is rich and replete with plexuses, so that the direction of spread of malignant cells through these channels is understandably unpredictable and fortuitous. Drainage is generally toward the skin surface. There a subcutaneous plexus of lymphatic vessels permits the cells to be carried in almost any direction. These migrations may require months or years. Periods of quiescence or colonization are followed by fresh migrations. Satellite nodules are commonly observed in the vicinity of advanced tumors, or malignant nodules may appear nearby one or two or three years after mastectomy. They are commonly referred to as "local recurrences"; actually, they are macroscopic growths from microscopic extensions that were already present but not removed at operation.

The main lymphatic trunks that converge toward regional lymph nodes provide another common method of spread of breast cancer. From the mammary gland, often by way of the subareolar plexus of lymphatic vessels, this spread of metastases occurs, superiorly toward the axilla, medially toward the mediastinum or the other breast, and inferiorly toward the abdomen. To reach the axillary nodes, some lymph channels obviously must pierce the pectoral muscles that intervene; to reach the internal mammary nodes, they may penetrate the inter-

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Adapted from an address read before the General Scientific Meeting, 103rd Annual Meeting of the American Medical Association, San Francisco, June 21, 1954.

costal structures; to reach the paravertebral nodes and diaphragm they traverse the rectus fascia and underlying muscles. Lymph-borne tumor cells reach a lymph node by way of its afferent vessels. Malignant cells lodge in the subcapsular plexus of the node where they multiply and slowly invade to node proper. In time they may destroy the node and replace it more or less completely with a mass of tumor cells. When ultimately the cancer cells reach the efferent lymph vessels of the involved node, some of them may travel further seeking new fields of conquest. Dr. Herbert Davis[1] has shown that in the invasion of axillary and other regional nodes, carcinoma may bypass some nodes while invading others.

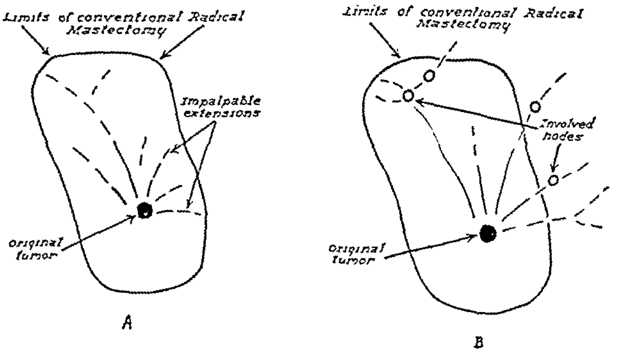
Limits of conventional Radical Mastectomy
Impalpable extensions
original tumor
A
Limits of conventional Radical Mastectomy
Involved nodes
Original tumor
B

Fig. 1.—Diagrammatic representation of impalpable extensions of mammary carcinoma. *A*, a degree of spread that still permits total excision. *B*, a degree of spread that precludes complete removal by classical radical mastectomy.

Another method of spread of breast cancer is by way of the blood stream. This probably occurs more frequently than has been thought. However, according to Boyd,[2] "tumor emboli are not synonymous with metastases. Tumor emboli in the lungs often die out, as M. B. Schmidt showed many years ago. They become coated with fibrin, and fail to develop into tumors." If, in two animals with the same type of mammary tumor, the lesions are massaged and one animal is killed soon after, the lung capillaries will be found to be stuffed with tumor cells, but the other animal, killed some months later, will show only a few metastases, indicating that most of the emboli have failed to develop. Some malignant emboli do become tumors, however, as shown by bone, lung, and brain metastases frequently observed in late stages of the disease.

Still another method of tumor spread is an accidental and tragic one. Cancer cells can be successfully transplanted to new areas by the surgeon at operation. Washings from instruments and the operative wound have been shown on occasion to contain cancer cells. Hence the rationale of *thorough irrigation of these wounds* before closing them. An instance has been reported of cancer developing in the thigh at the donor sight from which a skin graft was taken to cover the chest wound. In the treatment of breast cancer it is of utmost importance that the physician and surgeon should understand the mechanism of spread and recognize the probable extent of spread in patients. Unfortunately, that is not always the case. Even the original lesion may remain undiscovered, or be misdiagnosed, until hopeless extension of the malignancy has already occurred.

DETECTION OF CELLS

It should be kept in mind that the surgeon, however conscientious and skillful he may be, is able to detect only the gross spread of the disease. Beyond the limits that can be seen or felt are extensions that can be demonstrated by the microscope. The more experienced and zealous the pathologist, the wider the zone of extension that he can demonstrate. A recently reported investigation[3] consisted of a restudy of the axillary nodes of 30 patients with carcinoma of the breast that on routine examination had been reported uninvolved. The investigators made serial microtome sections of these nodes and studied every other section systematically—a painstaking piece of work. They found carcinoma cells in the nodes of one-third of the cases previously reported negative. The utmost limits of spread of malignancy and the scattered migrating cells and microscopic tumor emboli lie beyond the ken of the best pathologist. There is no way to detect them. This point is illustrated further by figure 1. The first diagram, *A*, represents a palpable mammary carcinoma that seems to the surgeon to be localized within the breast, an opinion that might well be confirmed by gross and microscopic examinations of the pathologist. However, in a proportion of such cases, *spread of the malignancy has in fact already occurred*, though not to such a degree but that radical mastectomy will remove all of it. The second diagram, *B*, shows another hypothetical case in which the surgeon and pathologist find involvement of a few axillary nodes. It is hoped that radical mastectomy will remove the entire malignancy en masse. But here again, at least in many such instances, the actual spread has gone beyond the limits of the classical operation and in consequence the most distant extensions are not excised. This concept that actual spread nearly always exceeds detectable spread is so important for a clear understanding of ra-

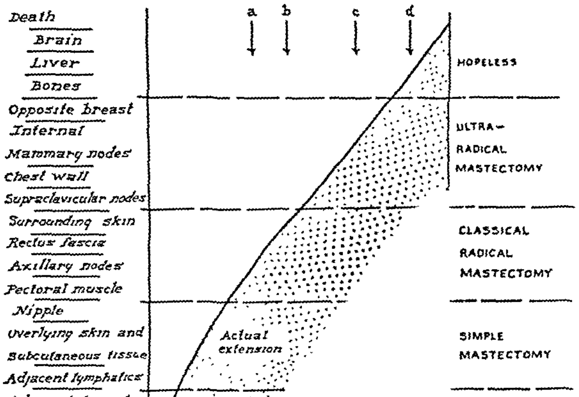

Fig. 2.—Diagrammatic representation of the difference between detectable spread and actual extension of breast carcinoma (ordinate) in relation to time (abscissa) and the adequacy of surgical attack at various stages, as when (*a*) patient discovers lump and visits doctor; (*b*) patient is delayed in reaching surgeon; (*c*) tumor is still older; and (*d*) too long delay makes case hopeless.

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1. Davis, H. H., and Neis, D. D.: Distribution of Axillary Lymph Node Metastases in Carcinoma of the Breast, Ann. Surg. **136**: 604-609 (Oct.) 1952.
2. Boyd, W.: A Text-Book of Pathology: An Introduction to Medicine, ed. 6, Philadelphia, Lea & Febiger, 1953, p. 230.
3. Saphir, O., and Amromin, G. D.: Obscure Axillary Lymph Node Metastasis in Carcinoma of the Breast, Cancer **1**: 238-241 (July) 1948.

tional treatment and prognosis that I shall illustrate it in another way. Figure 2 is a schematic representation of the progressive spread of mammary carcinoma with the passage of time. Imagine a hypothetical patient who discovers a lump in the breast by accident and goes without delay to her physician (position *a*). Physical examination shows the tumor to be localized in the breast. Actually, however, the cancer has been in existence for an indeterminate length of time and has been spreading insidiously. By the time the original lesion is large enough to attract attention, the actual limits of extension may have passed beyond the limits of local excision and even simple mastectomy may not ensure complete removal. Now assume that the tumor is not discovered so soon and that there has been delay in the patient reaching the surgeon (position *b*). By the time of operation, the cancer will really have been present, let us say, for one or two or three years. Gross spread is still limited to the site of the original lesion, but the actual spread is much greater, so that by now radical mastectomy is necessary for extirpation. Or, suppose the tumor is older still (position *c*). The same principle holds. Physical examination at this stage shows metastases in the axilla, but the actual limits of spread, in ways already discussed, is much wider, so that a very extensive surgical dissection and excision will be required to offer even a hope of complete removal of the malignant growth. If there is further delay (position *d*), the case becomes hopeless.

COMMENT

It is not inferred, of course, that there is any uniformity among breast tumors as to rate of spread or the order in which nodes or other structures become involved. On the contrary, there is tremendous amount of variation. The important point is that every cancer of the breast begins as a localized lesion that spreads in the course of time, first insidiously and impalpably and then grossly and detectably. If the diagnosis can be made in what is, for that particular tumor, an early stage, complete excision and cure may be possible; but if an advanced stage has been reached, whether rapidly or slowly in terms of years, even radical operation will not remove all of the malignant extensions. We err if we concentrate on the gross extent of the disease and ignore the impalpable spread, the limits of which can be only imperfectly detected even by the pathologist. The concept illustrated by these figures has helped me to understand why classical mastectomy offers only 70% 5 year clinical "cure" when the cancer is limited grossly and microscopically to the mammary gland and only 30% 5 year clinical "cures" when there are demonstrable axillary metastases; why 10 year survival rates are always less favorable than 5 year survival rates; why more radical operations give better results than less radical; why patients without demonstrable axillary metastases have a better prognosis than those with axillary involvement; why the outlook is better if only some of the nodes are involved than if all or nearly all of them are cancerous; why results are improved by thorough, meticulous, radical dissections; and why tumors located in the medial hemisphere usually have a relatively poor prognosis. This concept points up the intrinsic limitations of "ultraradical" surgery and radiation therapy. In the light of this concept, Haagensen's and Stout's criteria of inoperability take on fresh significance.

CONCLUSIONS

The only hope for cure of mammary cancer at the present time is to remove or destroy the entire malignant growth, including its most distant and elusive extensions and metastases. Every device that contributes to the accomplishment of that purpose will improve prognosis; hence the need for early diagnosis, prompt radical surgery, and, in appropriate cases, supplementary irradiation.

2033 S. State St. (3).

CRASH AND LIVE—NEED CARS KILL MORE SOLDIERS THAN GUNS?

Col. Don S. Wenger, U. S. A. F.

During the Korean war only half of the hospitalized casualties were the result of enemy action. During this same conflict, more Americans were killed in the United States in automobile accidents than were killed in the war.[1] The automobile is the military establishment's and the nation's greatest killer. An American is injured every 24 seconds and one is killed every 14 minutes in a traffic accident.

Because of the age group with which we deal in the military services we are concerned with a segment of population that has no aged, inactive, sedentary part; all drive and drive a great deal. One might then expect a considerably increased automobile injury and death rate in the armed forces. Adjusted for male groups of comparable ages, the military service has about 30% more fatalities due to auto accidents than do civilians.[2] The 2,000 deaths, the 22,000 injuries, the 70 million dollar bill to the military services for injuries in these accidents, and the military loss of almost one-half million man days, all due to automobile accidents in 1954, show that we do have a tremendous problem.

To prevent injury we must know something about the mechanism that produces the injury. Quite simply one may say that as in falling from a tall building it is not the fall but the sudden stop at the bottom that does the harm, so it is not necessarily the motion of the car that kills; it is the sudden stop your body undergoes. This sudden stop generates what are called decelerative forces. These forces are measured in multiples of the pull of gravity. A force equal to the pull of gravity is called a g of force. It follows then if the force that stops

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From the Office of the Surgeon General, Washington 25, D. C.

Read before the Section on Military Medicine at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

Discussion of this paper was opened by Mr. John O. Moore and Col. George Peer.

[1] Campbell, H. E.: Personal communication to the author.

[2] Allen, A. W., Jr.: Personal communication to the author.

the forward motion of your body is three times the pull of gravity, it is a 3 g deceleration. Detailed studies on this problem of decelerated forces have been made. Repeated exposures to 35 g without harm and peaks of 57 g with no observable damage are reported. Some Air Force men have undergone over 4 tons of sudden stop pressures with no more than transient physiological effects. An appalling fact is that in most automobile accidents the decelerative g forces are in the neighborhood of 25 g or below, well within the limits easily tolerated by the human body when it is properly supported and restrained. We must then accept the fact that, with some attention to engineering and to support and restraint of the body, fatalities in automobile accidents would be sharply reduced.

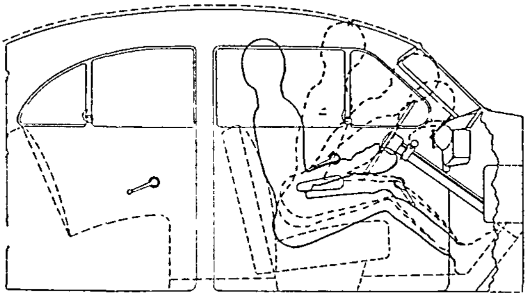

Fig. 1.—Kinematics and hit locations for an adult seated on the right side of the front seat. In a crash with the car moving only 7 mph, and with 1.5 g, the occupant's head struck the car roof in 0.17 second, the rear-view mirror in 0.23 second, and the instrument panel in 0.3 second.

HAZARDS

Studies done with dummies in controlled automobile crashes have revealed some interesting facts (fig. 1). When moving at a speed of only 7 miles an hour and with decelerative forces of but 1.5 g, the dummy, weighted to behave like a human body, flew upward and forward. Its head struck the car roof in 0.17 second; in 0.23 second it had hit the rear-view mirror, and in 0.3 second had come in contact with a third hard surface, the instrument panel.[3] Observations made by the Indiana state police on the part of the car that caused fatal injury in a series of accidents are another facet of the study of how and where we get hurt in car crashes. They have shown (fig. 2) that doors and framework are the most lethal part of a car.[4] A close second to these structures are objects outside the car against which the ejected occupant is thrown. Regardless of the severity of accidents, more occupants sustain moderate through fatal injuries by being ejected than by remaining in the automobile.[5] It has been reported that 1 out of 10 auto crash fatalities result because doors pop open and the victim is thrown out of the car.

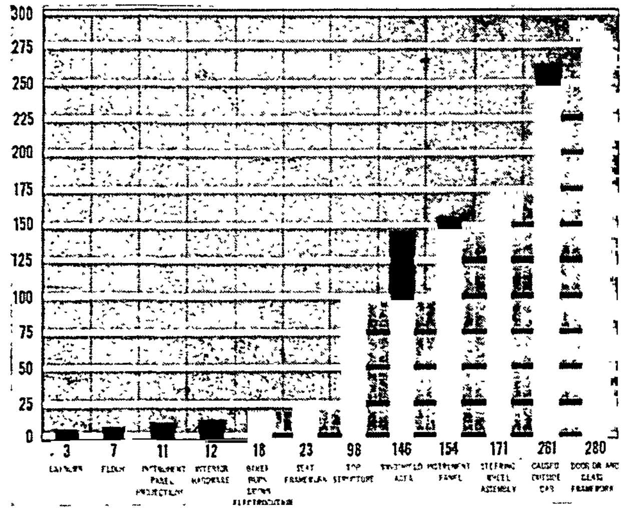

Fig. 2.—Causes of fatal automobile injuries.

A study of the hazard of ejections shows (fig. 3) that *moderate to fatal injuries increase significantly, and in* some cases more than double, when ejection from the car occurs.[5] It has been reported that when front doors opened in accidents, one out of every three occupants was completely ejected from the car. The statement has also been made by engineers studying the fatal accidents in Indiana in 1951 that two-thirds of them were survivable if the design of the car had been better.

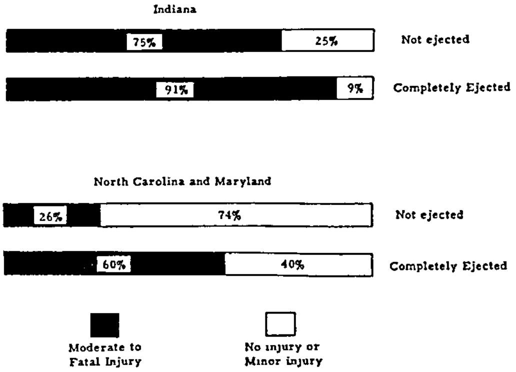

Fig. 3.—Injury as related to complete ejection from automobile.

A graph of the number of injuries to various parts of the body (fig. 4), giving the 1952 experience of one of the military services, shows over 8,000 minor injuries that required first-aid treatment only. After ruling out this group of injuries, it is significant that the next largest group, 2,409 cases, were head injuries. More head injuries occurred than the total of the next two most common injuries (lower extremities 1,400 and trunk 943). Although multiple injuries are often seen, it is nevertheless common to see a fatality that is relatively unscathed except for head injuries. The force required to seriously injure a head may vary a great deal depending on the area through which the force is absorbed and the time during which the force is applied. In demonstration of the variations caused by changing the size of the area involved, the following rough estimates are cited: 600 in.-lb. of force will fracture a skull struck by a firm flat surface; a baseball bat will break a head with only 85 in.-lb. of force; and on a sharp 90 degree angle, such as the edge of a rear-view mirror, a skull will fracture with only 50 in.-lb. of force.

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3. Automobile Crash Safety Research Report YS-846-D-1, Cornell Aeronautical Laboratory, Dec. 31, 1953.

4. The Indiana State Police Autocrash Injury Research Annual Report, Indiana State Police, Oct. 1, 1954.

5. Moore, J. O., and Tourin, B.: A Study of Automobile Doors Opening Under Crash Conditions, New York, Cornell University Medical College, Department of Public Health and Preventive Medicine, Aug. 1, 1954.

PROTECTION DEVICES

Protection from crash injuries may be local or general. Local protection is the guarding of parts frequently injured. An example is the crash helmet that a flyer or an automobile racer uses. A serious problem in the use of local protective devices is getting the motorist to use the device. The jet pilot has been educated from the beginning of his training that a helmet will keep him from getting his brains scrambled on the canopy of his plane if he hits rough air or crash lands. No one has yet educated the motorist in methods of living through accidents. The next step toward safety in design is education of the driving public to recognize the need, to realize the possibility of protection, and to demand these changes that will protect him.

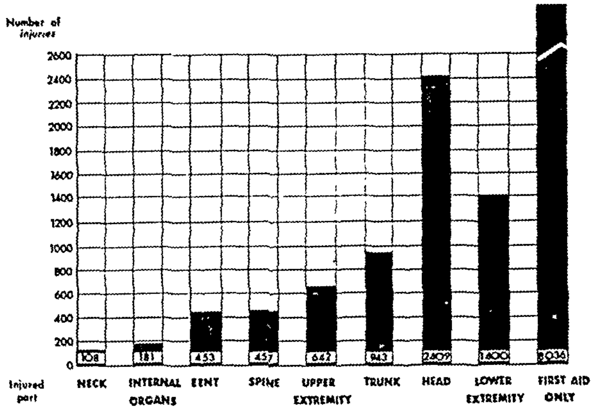


Fig. 4.—Frequency of injury to various parts of the body (1952 experiences of one of the military services).

There are several items of equipment and design that would increase a motorist's chance of survival of an accident. The first, simplest, and perhaps, under present circumstances, the most effective procedure would be to secure the passengers within the vehicle with a safety belt. The passengers then would wear the vehicle much as a knight of old wore a suit of armor. Forces that a safety belt can control are surprising. In a 50 g deceleration run at Muroc Lake, Calif., Oscar, a dummy used in some tests, broke his restraining harness. He flew through the protecting shield and bounced down the track, sliding to a stop 789 ft. away. Investigators at Cornell University, Ithaca, N. Y., believe that a safety belt will prevent about one-half of the fatalities in automobile accidents. A simple lap belt can be made even safer by adding a chest strap that will prevent bending over the lap belt and hitting the head on the dashboard. As long as there are car doors that pop open and windshields that do not, a safety belt is needed to restrain the car's occupant from flying about within the car or getting ejected from it.

If the decelerative forces generated by an accident are absorbed through a large surface much less damage results than if the same forces are absorbed through a small surface. For example, if a body falls flat on its back into soft earth it may undergo a deceleration of 150 g but have pressures of only 30 lb. per square inch on the surfaces involved. On the other hand, if the 150 g deceleration is absorbed entirely by a few square inches on the top of the head, the pounds per square inch will go to astronomical figures and severe injuries will result. Padded panels and crash pads on the steering wheel and other structures serve to increase the area over which decelerative forces are applied. If one can reduce the sudden high peaks of decelerative force the probability of injury is also greatly reduced. If deceleration is over a greater distance and for a longer time the peaks of force are reduced. Soft pads serve to increase by a significant degree the distance through which deceleration is accomplished, and thereby not only increase the area of the force-absorbing surface but reduce the peaks of force that must be absorbed.

Another method of reducing the sudden severe peaks of decelerative forces is the construction of a frame that will progressively disintegrate (fig. 5) and absorb g's during its disintegration. The principle involved is that the frame collapses with the stress necessary to decelerate it with a certain predetermined number of g's. The greater the speed at impact the more frame collapses and the more time is consumed in deceleration, but never does the force rise above the predetermined decelerative force for which it is designed. Since this is true, the passengers in the uncollapsed portion remain relatively safe, for never are they subjected to sudden high peaks of deceleration that will tear loose and throw them about. Passengers in the rear of a vehicle designed in this fashion when crashing at 60 mph are never subject to a greater decelerative force than when crashing at 20 mph. The only factor that changes is the time during which they are exposed to this force. This energy-absorbing construction can, of course, be extended to parts of the construction as well as used on the main frame. Examples would be a hydraulic or collapsible bumper that would absorb energy and decelerate the car gradually. A telescoping steering wheel or one perhaps of the weak-link principle of construction that would collapse under certain predetermined forces would be another example of energy-absorbing construction. Many vehicles now have a steering wheel that will deform under pressure.

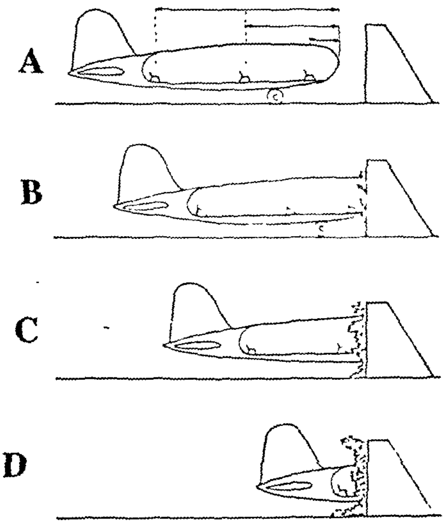


Fig. 5.—Progressive disintegration of the frame will reduce the sudden severe peaks of decelerative force. *A*, mock-up of a fuselage. *B*, crash at 20 mph with 4 ft. of structural collapse. *C*, crash at 40 mph with 16 ft. of structural collapse. *D*, crash at 60 mph with 36 ft. of structural collapse. Maximum decelerative force in *B*, *C*, and *D* is 3.3 g.

This is also energy-absorbing construction that removes a lethal hazard from the driver.

A pop-out windshield is another device to remove a hard, dangerous surface from the path of flying bodies. It may also prevent a cut throat.

Whiplash injuries of the neck are common results of being hit from behind. Sudden acceleration whips the head backwards, automatic correction is put into action by the body, and, because the sudden acceleration stops just as suddenly (becoming deceleration), overcorrection occurs and the head and neck lash forward. This whip-like action sprains many necks. To raise the back of the seats to a level that would support the back of the head and neck would prevent most of these injuries for the acceleration would not start the body's compensatory motion because the support of the back of the seat would substitute for the neck muscles support. For this reason, overcorrection would not occur and the whipping action would be so minimized that injury would be rare.

SUMMARY

The military services sustain an important loss in lives, hours, and dollars as a result of automobile accidents. Injuries usually result from specific causes. Remedies may be just as specific and simple. Reduce the high peaks of decelerative forces, enlarge the area that absorbs these forces, and restrain the occupants of automobiles so they do not fly around within or outside the car and a majority of the fatalities and injuries would never occur. Possible mechanisms to obtain these results are safety belts, a progressively disintegrating frame, and energy-absorbing construction of various lethal parts of the vehicle such as steering wheels, instrument panels, windshields, and seat backs. A shock-absorbing bumper, either hydraulic or collapsible, padded panels, and pop-out windshields are possible examples of such construction. A high-backed seat would reduce materially the whiplash neck injuries. If properly packaged for survival you can crash your car and live.

INTRAVENOUS CHOLECYSTOCHOLANGIOGRAPHY

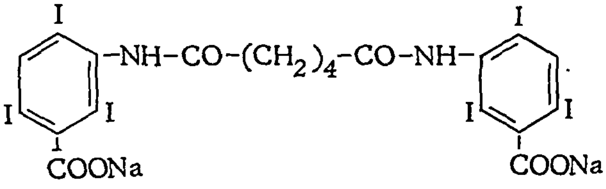
William H. Shehadi, M.D., New York

Visualization of the biliary tract in the natural or intact state has been realized in three major stages, each a milestone of progress in this field. The first stage came with the well-known work of Graham and Cole [1] in 1924 and 1925, which resulted in visualization of the gallbladder. The second stage came about a quarter of a century later through the introduction of iopanoic acid (Telepaque). While investigating this compound as a cholecystographic medium, a high incidence of bile duct visualization was observed.[2] With adequate gallbladder function, the cystic and common bile ducts are visualized in normalcy and the hepatic ducts by reflux.[3] This occurs in 70% of patients examined, or in about 85% of patients whose gallbladders can be visualized. The incidence of duct visualization in the cholecystectomized patient is low and remains more or less unpredictable. The third stage came with the introduction of sodium iodipamide (Cholografin) in this country about two years ago [4]; it had been introduced in Europe about a year prior [5] as Biligrafin. When injected intravenously, sodium iodipamide provides a reliable, rapid, and safe medium for visualization of the entire biliary tract, as demonstrated by our experience in over 200 cases. Other investigators reporting on smaller or larger series, both in this country and abroad, have arrived at the same conclusion.

SODIUM IODIPAMIDE

Intravenously injected sodium iodipamide will produce (1) visualization of the bile ducts in cholecystectomized patients and in patients whose gallbladders fail to be visualized after oral administration of a radiopaque material, due either to gallbladder disease or to faulty absorption because of disturbed function of the gastrointestinal tract and (2) visualization of the gallbladder; often, when there has been failure of visualization after use of an orally administered radiopaque material.

With six firmly bound iodine atoms in its molecule, sodium iodipamide readily opacifies the biliary tract as bile flows from the liver into the ducts. This is independent of the gallbladder's ability to absorb water and concentrate its contents. It is the disodium salt of N,N'-adipyl-bis (3 amino-2,4,6-triiodobenzoic acid), with an empirical formula of $C_{20}H_{12}O_6Na_2$, a molecular weight of 1183.35, and an iodine content of 64.32% The structural formula is:



This is a readily soluble crystalline substance, supplied in a 20 cc. ampul of a 20% solution, with a companion 1 cc. test ampul. Optimal dose is 40 cc.

PREPARATION AND INJECTION

To prepare the patient for examination administration of castor oil the evening preceding the examination and withholding of fluids for 12 hours or more for dehydra-

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From the New York Polyclinic Medical School and Hospital.

Read in the Symposium on Newer Contrast Media for Visualization of the Biliary Passages, before the Section on Radiology at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

[1] Graham, E. A., and Cole, W. H.: Roentgenologic Examination of the Gallbladder: New Method Utilizing Intravenous Injection of Tetrabromophenolphthalein, J. A. M. A. 82: 613-614 (Feb. 23) 1924. Graham, E. A., and others: Cholecystography: Oral Administration of Sodium Tetraiodophenolphthalein, ibid. 85: 953-955 (Sept. 26) 1925.

[2] Shehadi, W. H.: Telepaque, a New Cholecystographic Medium with Improved Visualization of the Gallbladder and Visualization of the Bile Ducts, Am. J. Roentgenol. 68: 360-368 (Sept.) 1952.

[3] Shehadi, W. H.: Oral Cholangiography with Telepaque, Am. J. Roentgenol. 72: 436-451 (Sept.) 1954.

tion purposes may be supplemented by use of neostigmine (Prostigmin) at the time of the examination, if indicated. Failure to adequately prepare the patient may account for the apparent unsatisfactory results obtained by some workers.

Despite the very low toxicity of sodium iodipamide, cose solution, ephedrine, and oxygen tanks, should be performed on all patients prior to its administration. The ocular test should not be performed. It is unreliable and not without danger to the eye in case of a severe reaction. However, positive sensitivity tests do not necessarily forecast or indicate the occurrence of side-reactions. With a known history of allergy or a strongly positive test we recommend premedication with diphenhydramine (Benadryl) hydrochloride or chlorpheniramine (Chlor-Trimeton) maleate. An emergency set, including a number of sterile syringes, needles, 5% glucose solution, ephedrine, and oxygen tanks, should be available at all times. Warmed to body temperature, 40 cc. of sodium iodipamide is injected slowly during a period of 10 minutes. The incidence and intensity of side-reactions can be increased with acceleration of the injection rate, and vice versa. The side-reactions so far encountered (table 1) have been easy to control. Anyone who has had experience with other intravenously injected contrast mediums, especially those used in urography, should have no hesitation whatever in using sodium iodipamide. Blood pressure as determined by measurements made before, during, and after examination remains essentially unaltered. Minimal fluctuations have been noted in some cases but seem to be of no consequence.

TABLE 1.—*Side-Reactions in 200 Patients After Injection of Forty Cubic Centimeters of Sodium Iodipamide*

	Patients	
	No.	% Examined
Nausea	11	5.5
Vomiting	3	1.5
Sensation of heat	4	2.0
Flushing	7	3.5
Chills	2	1.0
Temperature	1	0.5
Pain in the arm	3	1.5
Headache	1	0.5
Allergic reaction with marked drop in blood pressure	1	0.5
Total side-reactions noted	33	16.5

METHOD OF EXAMINATION

The patient is placed in the supine position, with the left side elevated 15 to 30 degrees. Through greater comfort in this position, the patient will cooperate more freely. The ducts are equidistant from the anterior and posterior abdominal wall; therefore, no distortion occurs. Use of this position developed with our work on iopanoic acid and is equally applicable here.[6] When present, the gallbladder will be at a higher level and heavier bile will flow more readily, giving a more intense duct shadow after a fat meal, especially of the cystic, which is better visualized with iopanoic acid than with sodium iodipamide. The success of the procedure, to a large measure, depends on careful attention paid to technique and detail. Every film should be inspected by the radiologist as soon as it is developed, and the position and technique should be corrected and varied as indicated, in order to obtain optimal results.

EXCRETION

Sodium iodipamide is selectively excreted by the liver through the bile. In 90% of cases it appears in the ducts immediately after injection. In 10% of cases it is excreted entirely by the kidneys. Simultaneous hepatic and renal excretion occurs without evident liver disease and with satisfactory visualization of the biliary tract (fig. 1). The significance of this phenomenon cannot be evaluated at the present time. Further studies may prove enlightening in this respect, as well as in evaluation of this method as a liver function test. After liver excretion sodium iodipamide is eliminated by the intestines with no evidence of reabsorption.

VISUALIZATION OF THE BILIARY TRACT

Prompt liver excretion results in visualization of the bile ducts as early as 10 minutes after completion of the injection. For a study of the ducts, films should be made at 10 minute intervals up to 60 minutes, with optimal visualization occurring at 30 to 40 minutes. The gallbladder is often visualized as early as 10 to 20 minutes after the injection but usually at about two to two and a half hours. Once filled, the gallbladder examination should be completed in the same manner as after oral cholecystography (fig. 1).

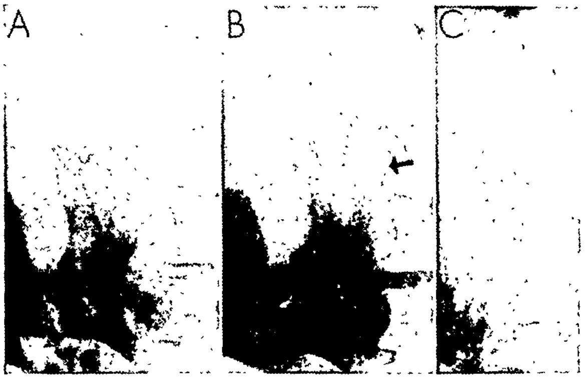

Fig. 1.—Simultaneous hepatic and renal (arrow) excretion. Early filling of normal gallbladder, with prompt response to a fat meal. Normal bile ducts. *A*, 10 minutes after injection; *B*, 60 minutes after injection; and *C*, 40 minutes after fat meal.

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4. (*a*) Berk, J. E.; Karnofsky, R. E.; Shay, H., and Stauffer, H. M.: Intravenous Cholecystography and Cholangiography: Report of Preliminary Observations, Am. J. M. Sc. **227**: 361-371 (April) 1954. (*b*) Glenn, F.; Evans, J.; Hill, M., and McClenahan, J.: Intravenous Cholangiography, Ann. Surg. **140**: 600-614 (Oct.) 1954. (*c*) Orloff, T. L.; Sklaroff, D. M.; Cohn, E. M., and Gershon-Cohen, J.: Intravenous Choledochography with a New Contrast Medium, "Cholografin," Radiology **62**: 868-870 (June) 1954. (*d*) Shehadi, W. H.: Cholografin: A New Intravenously Administered Contrast Medium for the Visualization of the Gallbladder and Bile Ducts, Am. J. Roentgenol., to be published.

5. Frommhold, W.: Ein neuartiges Kontrastmittel für die intravenose Cholezystographie, Fortschr. Geb. Röntgenstrahlen **79**: 283-291 (Sept.) 1953. Gaebel, E., and Teschendorf, W.: Darstellung der Gallenwege mit Biligrafin (Unblutige Cholengiographie), Röntgen Blätter **6**: 162-170, 1953. Hornykiewytsch, T., and Stender, H. S.: Intravenöse Cholangiographie, Fortschr. Geb. Röntgenstrahlen **79**: 292-309 (Sept.) 1953. Milanes, F., and others: Colecisto-colangiografia con la Biligrafina intravenosa: Valoracion clínica, Arch. hosp. Univ., Havana, Cuba **6**: 13-28 (Jan.-Feb.) 1954. Püschel, C.: Über klinische und röntgenologische Erfahrungen mit dem neuen iv Gallekontrastmittel "Biligrafin," Deutsche med. Wchnschr. **78**: 1327-1329 (Sept.) 1953. Stieve, F. E.: Beobachtungen bei Cholezystographien mit Biligrafin und die sich daraus ergebenden diagnostischen Folgerungen, Fortschr. Geb. Röntgenstrahlen **81**: 735-748 (Dec.) 1954. Teschendorf, W.: Personal communication to the author.

6. Footnotes 2 and 3.

Not infrequently, an area of decreased density is seen in the center of the gallbladder (fig. 2). This is due to slow or delayed mixing of the inflowing sodium iodipamide that, with the bile, is already present in the gallbladder. At times (table 2) the gallbladder failed to visualize with an orally given radiopaque material but was well visualized with sodium iodipamide. In some cases one or more calculi were found, while in the others the gallbladder was apparently normal. One may presume that transitory impaction of a calculus at the ampulla of the gallbladder may have occurred in some instances (fig. 2); however, this explanation does not seem tenable in the absence of calculi. Other causes are still to be found. In a cholecystectomized patient the examination should be completed in one hour; however, when there is partial obstruction at the distal end of the common bile duct a longer time may be needed because of accumulation of the inspissated bile (fig. 3). In the presence of obstructive jaundice the bile ducts can not be visualized.

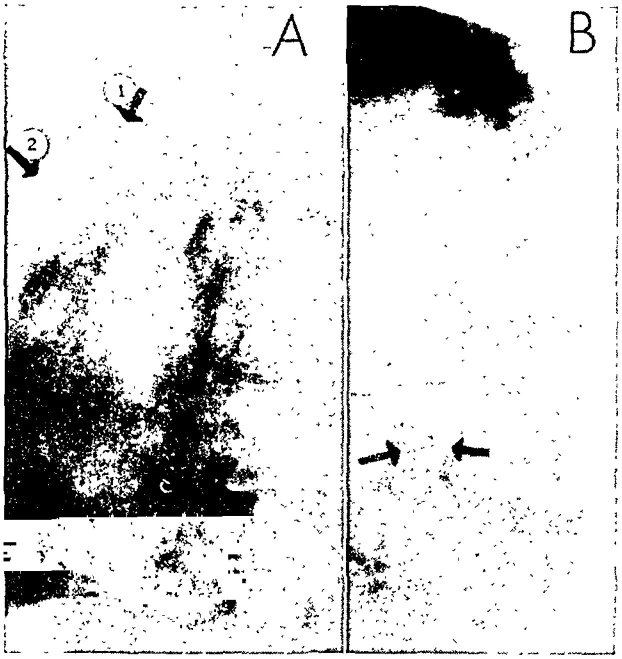

Fig. 2.—*A*, almost complete impaction of cholesterol calculus at infundibulum (arrow 1). Area of decreased radiance in gallbladder (arrow 2) represents poor admixture, with sodium iodipamide surrounding bile. This later disappears. *B*, after fat meal calculus had dropped to bottom of fundus.

TABLE 2.—*Observation of Eighty-One Patients Examined Both with Iopanoic Acid and Sodium Iodipamide, with Operative Follow-Up*

	No. of Patients		
Total cases with gallbladder visualization..........	37		
Gallbladder visualized with iopanoic acid and sodium iodipamide..............................		18	
Normal roentgen findings—not operated on.			5
Poor to adequate visualization with calculi present—diagnosis of chronic cholecystitis, with or without calculi.....................			13
Gallbladder visualized with sodium iodipamide...		19	
Normal roentgen findings—not operated on.			8
Faint to adequate visualization with calculi present—diagnosis of chronic cholecystitis, with or without calculi....................			11
Total normal............................		13	
Total abnormal..........................		24	
Gallbladder not visualized with either iopanoic acid or sodium iodipamide...........................	44		
Diagnosis of chronic cholecystitis, with or without exacerbation and with or without calculi	..	..	..
Total *	81		

* In all 81 patients there was prompt hepatic excretion with good visualization of normal bile ducts.

ANATOMIC AND PHYSIOLOGICAL CONSIDERATIONS

In order to adequately evaluate pathological changes a basic knowledge of the normal anatomy and physiology is imperative. We were confronted with this very problem in our initial work on iopanoic acid.[6] Consistent duct visualization was obtained, but there was no base line to fall back on. Duct measurements of the anatomic specimen in the cadaver and in the operating room during laparotomy were misleading because of the variety of abnormal factors involved, as compared with the absolute normal in the intact subject. After administration of iopanoic acid, duct measurements were made on the roentgenograms of several hundred normal subjects, with correction for distortion due to distance, whose gallbladders demonstrated normal function, who were entirely asymptomatic, and who had received no medication other than the iopanoic acid.

The hepatic and common bile ducts are practically of equal caliber and measure 0.5-0.6 cm. in diameter.[3] A 0.1-0.2 cm. measurement is often obtained during a phase of relaxation of the sphincter of Oddi, with rapid passage of the opacified bile into the duodenum. The tortuous cystic duct measures 0.2-0.3 cm. in diameter. These findings have been corroborated by subsequent sodium iodipamide studies.[4d] Any departure from these measurements, if constant, is to be regarded as abnormal and should lead to a search for the cause. Our recent

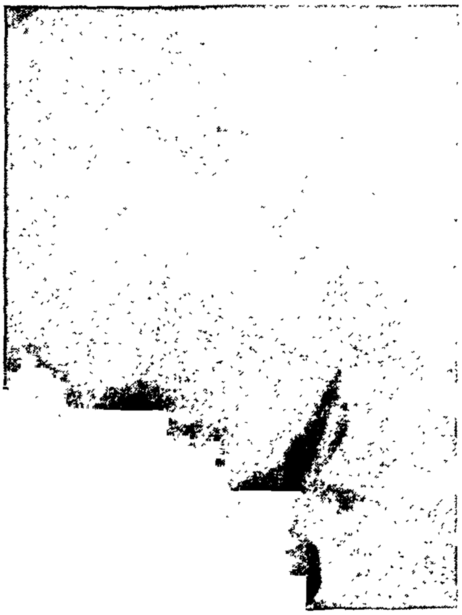

Fig. 3.—Roentgenogram made 60 minutes after injection showing marked dilatation of common and hepatic duct. Note funnel-shaped distal end of common bile ducts. Cholecystectomy had been done five years prior.

studies reveal the following causes: calculi in the ducts, strictures, stenosis of the sphincter of Oddi, growth of intrinsic tumors, or pressure from extrinsic masses.

It may seem premature to voice a definitive opinion, but our studies so far do not warrant the contention that compensatory functional dilatation of the main bile ducts takes place after cholecystectomy. When such dilatation occurs, in the absence of calculi, adhesions, or tumors, it is usually caused by stricture of the duct or stenosis at the sphincter of Oddi. It is felt at this time that further studies will warrant an impression so far gained, and proved, in many cases that often the so-called postcholecystectomy syndrome is a late recognition of preexisting, most probably gradually progressing, conditions antedating the cholecystectomy, whether or not the gallbladder was diseased at the time of the operation.

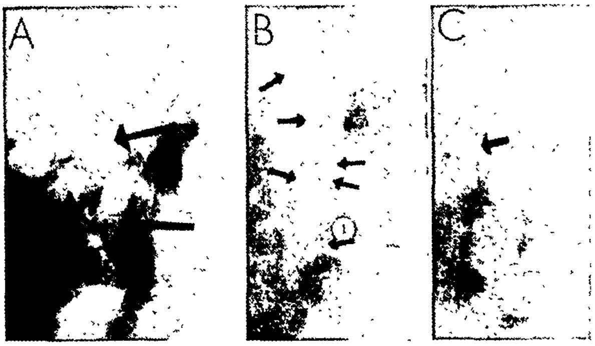

Fig. 4.—Variety of calculi in common bile duct, proved at operation. *A*, multiple bile pigment calculi and dilated duct. Cholecystectomy had been done eight years prior. *B*, multiple cholesterol calculi, with one calculus impacted at distal end of common bile duct (arrow 1), and dilatation of both hepatic and common bile ducts. Cholecystectomy had been done four years prior. *C*, large cholesterol calculus, with calcium ring at distal end of dilated common duct. Gallbladder in situ.

Intravenous cholangiography will reveal a number of pathological conditions with dilatation. The most frequent type of dilatation of the extra hepatic bile ducts is due to stenosis of the sphincter of Oddi (fig. 3). In this condition, the distal portion of the common bile duct is more or less funnel-shaped, with accompanying uniform proximal dilatation, whereas compression by tumor masses will result in corresponding deformity and, at times, irregular dilatation. Calculi are obvious by the shadow or filling defects they produce (fig. 4). In addition to the above, this method of examination has revealed a number of anatomic variations, the preoperative recognition of which is of great importance to the surgeon. Residual stump of the cystic duct, with or without calculi, and so-called reformed gallbladders have also been observed in our series.

SUMMARY

A new and safe method for rapid visualization of the biliary tract is now available. Use of sodium iodipamide (Cholografin) is indicated (1) in patients who have had prior cholecystectomy, (2) when the gallbladder fails to visualize after administration of an orally given radiopaque material, (3) when patients are unable to retain or absorb orally administered medicament because of disturbed function or disease of the gastrointestinal tract, and (4) when prompt evaluation of the biliary tract is required in the differential diagnosis of acute conditions, especially when surgery is considered. Contraindications to its use are obstructive jaundice and severe liver and kidney damage. With a history of allergy or sensitivity to iodine and to intravenously administered iodine-containing mediums, sodium iodipamide may be safely administered after premedication with diphenhydramine (Benadryl) hydrochloride or chlorpheniramine (Chlor-Trimeton) maleate. In addition, oxygen, 5% glucose solution, and ephedrine should always be available for instant use when needed.

345 W. 50th St. (19).

INTRAVENOUS CHOLANGIOGRAPHY IN THE POSTCHOLECYSTECTOMY SYNDROME

John L. McClenahan, M.D., John A. Evans, M.D.
and
Paul W. Braunstein, M.D., New York

Because of its ability to demonstrate the bile ducts when the gallbladder has been resected or has ceased to function, sodium iodipamide (Cholografin) offered immediate promise in the examination of patients with digestive complaints persisting after cholecystectomy. In recent months we have examined 121 individuals with the varied symptoms of the postcholecystectomy syndrome, and we present in this paper our analysis of their intravenous cholangiograms. We offer, in addition, our observations in a control series of 46 patients who reported themselves free of symptoms after cholecystectomy.

The postcholecystectomy syndrome is a familiar and discouraging disorder characterized by abdominal pain, nausea, and intolerance to certain foods, continuing unabated after cholecystectomy. Its very name is ambiguous in its implication that the operation has caused symptoms, when, in fact, it has simply failed to relieve them; for this reason we prefer Best's[1] more accurate term, "the recurrent biliary tract syndrome." Causes for the complaint may be mechanical irritation or obstruction of the common bile duct because of stone or cystic duct remnant or functional spasm and incoordination

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From the departments of radiology and surgery, the New York Hospital-Cornell Medical Center.

Read in the Symposium on Newer Contrast Media for Visualization of the Biliary Passages, before the Section on Radiology at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

The sodium iodipamide used in this study was supplied as Cholografin by E. R. Squibb & Sons, New York.

[1] Best, R. R.: Remaining Common Duct Stones and the Recurrent Biliary Tract Syndrome, editorial, A. M. A. Arch. Surg. 66: 581 (May) 1953.

(biliary dyskinesia) of the sphincter of Oddi. In the numerous reports on the subject may be found one point of general agreement—the importance of cholelithiasis in the initial preoperative diagnosis. Cole and Grove[2] estimate, for example, that cholecystectomy will relieve the symptoms in 95 of 100 patients if there are stones in the gallbladder but will perhaps benefit only 60% of those with noncalculous disease.

Until recently operative cholangiography has been the only reliable method of outlining the bile ducts after cholecystectomy, and with supplemental information from the laboratory we have been taught what we know of the pathology of the bile ducts and physiology of the choledochal sphincter. Oral cholangiography has sometimes been successful when the gallbladder is present and functioning[3] but is unpredictable after cholecystectomy. It is in just this situation that intravenous cholangiography gives its most rewarding results.[4]

PROCEDURE

The properties of sodium iodipamide have been frequently described[5] and need not be reviewed here. It is important that the medium should be injected slowly and the patient be as free as possible from jaundice and from drug idiosyncrasies. We have usually given the full dose of 40 cc. of the 20% solution, and as a rule we have not given camphorated opium tincture (paregoric) or any other opiate before examination. Our series of 121 patients with the postcholecystectomy syndrome included 100 women and 21 men, whose ages extended from 23 to 79 years. The common bile duct was adequately shown in 87% of the group. Three severe reactions occurred, presenting the picture of shock, with vomiting, abdominal pain, profuse perspiration, and ashen complexion. More mild reactions were observed in 25 other individuals who became nauseated, flushed, and who occasionally vomited. In every case the reaction subsided spontaneously or after administration of an orally given antihistamine. We found preliminary skin testing of little value in predicting a toxic systemic reaction to the drug.

In a clinical report to follow, the symptoms of our patients will be presented in detail and related to operative findings and cholangiograms. Every individual complained of upper abdominal pain. In many the pain radiated to the back. Some patients reported episodes of jaundice and fever. In order to simplify our statistics we have attributed symptoms to a single cause when more than one abnormality existed in any one patient. To avoid exaggerating the part played by the biliary tract we have, when the choice existed, ascribed symptoms to lesions outside the bile ducts.

CLINICAL FINDINGS

Extrahepatic Disease.—The complaints of 26 patients (21.5%) could reasonably be accounted for by concurrent extrahepatic disease. These are listed in table 1 and include duodenal ulcer (7 cases), chronic and recurrent pancreatitis (7 cases), hiatus hernia (2 cases), and 10 miscellaneous ailments. In this entire group the common bile ducts of 4 patients failed to be visualized, in 11 they were dilated, and in 11 they were of normal diameter. Our results were inconclusive as regards pancreatitis—the common bile ducts were of normal diameter in three patients, dilated in two, and invisible in two. In none of the patients with pancreatitis did we observe any characteristic tapering, constriction, or displacement of the lower end of the common bile duct.

TABLE 1.—*Summary of Findings in 121 Patients* with Postcholecystectomy Syndrome*

		Patients			
		No.		%	
Common bile ducts visualized		105		86.8	
Known extrahepatic disease			26		21.5
Duodenal ulcer	7				
Pancreatitis	7				
Hiatus hernia	2				
Miscellaneous	10				
Known parenchymal disease			10		8.3
Cirrhosis	5				
Hepatitis	2				
Polycystic disease	1				
Tumor	1				
Type undetermined	1				
Major duct abnormalities			40		33.0
Cystic duct remnants	20				
Strictures and adhesions	9				
Stones	11				
Dilatation only			29		24.0
No duct visualization (normal liver)		1		0.8	
No abnormality		15		12.4	
Total		121		100	

* 100 women, 21 men.

Disease of the Liver Parenchyma.—Ten individuals (8.3%) presented clinical and laboratory evidence of liver damage. These, as summarized in table 1, included five cases of cirrhosis, two of hepatitis, and one each of tumor, polycystic disease, and unknown hepatocellular disease. In only 3 of these 10 patients could the common bile duct be identified.

Lesions of the Major Bile Ducts.—Mechanical defects capable of irritating or obstructing the bile ducts were demonstrated in 40 patients (33%) and are listed in table 1. The most common lesion was a persistent cystic duct stump (fig. 1), which was shown in 20 individuals (16.5%). This is a significant figure if one accepts the evidence of Beye,[6] Gray and Sharpe,[7] and Garlock and Hurwitt[8] that these remnants cause symptoms by virtue of chronic inflammation and calculus formation induced in a blind sac. In four individuals the stumps contained calculi, and in one the stump contracted as a gallbladder might do after a fat meal. The cystic duct remnant often followed an unusual course, lying parallel with the common bile duct or crossing it to insert on its medial wall. In nine patients (7.4%) we demonstrated marked angulation, distortion, or stricture of the common bile duct (fig. 2).

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[2] Cole, W. H., and Grove, W. J.: Persistence of Symptoms Following Cholecystectomy with Special Reference to Anomalies of the Ampulla of Vater, Ann. Surg. **136**: 73 (July) 1952.

[3] (*a*) Weingarten, M.: Calculi in a Dilated Stump of the Cystic Duct: Preoperative Visualization, J. A. M. A. **145**: 157 (Jan. 20) 1953. (*b*) Shehadi, W. H.: Oral Cholangiography with Telepaque, Am. J. Roentgenol. **72**: 436 (Sept.) 1954. (*c*) Twiss, J. R.; Berenbaum, S. A.; Gillette, L., and Poppel, M. H.: Post-Cholecystectomy Oral Cholangiography: A Preliminary Report, Am. J. M. Sc. **227**: 372 (April) 1954.

[4] Caroli, J., and others: The Place of Intravenous Angiocholangiography in the Diagnosis of Diseases of the Main Bile Ducts, abstracted, Am. J. Roentgenol. **73**: 158 (Jan.) 1955. Cohn, E. M.; Orloff, T. L.; Sklaroff, D. M., and Gershon-Cohen, J.: The Use of Cholografin in the Postcholecystectomy Syndrome, Ann. Int. Med. **42**: 59 (Jan.) 1955.

[5] Frommhold, W.: New Contrast Medium for Intravenous Cholecystography, Fortschr. Geb. Röntgenstrahlen **79**: 283 (Sept.) 1953. Berk, J. E.; Karnofsky, R. E.; Shay, H., and Stauffer, H. M.: Intravenous Cholecystography and Cholangiography: Report of Preliminary Observations, Am. J. M. Sc. **227**: 361 (April) 1954. Glenn, F.; Evans, J.; Hill, M., and McClenahan, J.: Intravenous Cholangiography, Ann. Surg. **140**: 600 (Oct.) 1954.

[6] Beye, H. L.: Conditions Necessitating Surgery Following Cholecystectomy: Analysis of 66 Cases and Discussion of Certain Technical Problems Concerned in Removal of Gall Bladder and in Operations upon Common Bile Duct, Surg., Gynec. & Obst. **62**: 191 (Feb.) 1936.

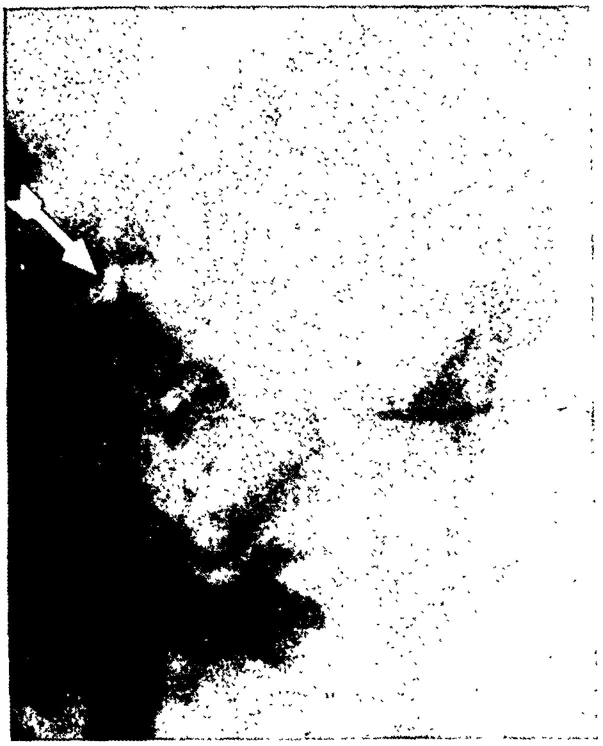

Fig. 1.—Roentgenogram made 30 minutes after injection of sodium iodipamide. A cholecystectomy had been performed 15 years previously, but the patient continued to complain of intermittent epigastric pain and vomiting. Note the long cystic duct remnant (arrow) lying close to the common bile duct. The valves of Heister are clearly visible.

In a total of 11 patients (9.1%) calculi were lodged in the extrahepatic ducts. Ten of these calculi could be seen on the cholangiograms (fig. 3); one could not be seen because of inadequate duct opacification. In seven instances the stones were in the common bile duct; in the four cases previously cited they were lying in the cystic duct stump. Eight patients with choledocholithiasis were not jaundiced; in two there was borderline elevation of the serum bilirubin level and in one faint scleral icterus at the time of examination. Seven of these 11 patients have been operated on and their stones removed; 4 have not yet been explored. We have found body-section roentgenography an indispensable adjunct to conventional projections, and we use it almost routinely.

Dilatation of the Common Bile Duct.—Dimensions of the common bile duct vary considerably when measured roentgenographically. This is not unusual if one recalls that the ducts have been measured when distended under pressure during operative cholangiography[9] or during oral cholangiography when their diameters were modified by a functioning, distensible gallbladder.[3b] We have arbitrarily set 7 mm. as the upper limit of normal common bile duct diameter, measuring it on a posteroanterior projection, employing a 40 in. target-film distance. We refer to any duct larger than 7 mm. in maximum diameter as dilated.

Marked dilatation was noted in 9 of the 10 common bile ducts in which stones were demonstrated, the average diameter in this group being 15 mm. and the maximum diameter 25 mm. (table 2). There was less dilatation associated with persistent cystic duct stump, stricture, and adhesion—the average diameter in this category being 9 mm. In 29 individuals (24%), a group presumably including patients with fibrosis or reflex spasm of the sphincter of Oddi, the only recorded abnormality was dilatation of the common bile duct (table 2). We could detect no constant relationship between the size of the common bile duct and the time that had elapsed since cholecystectomy.

It should be possible, in theory at least, to deduce the degree of bile stasis resulting from spasm or fibrosis of the choledochal sphincter by determining how soon after injection sodium iodipamide appears in the duodenum. This is a tantalizing figure. It is also unreliable for a number of reasons, chief of which is the languid sense

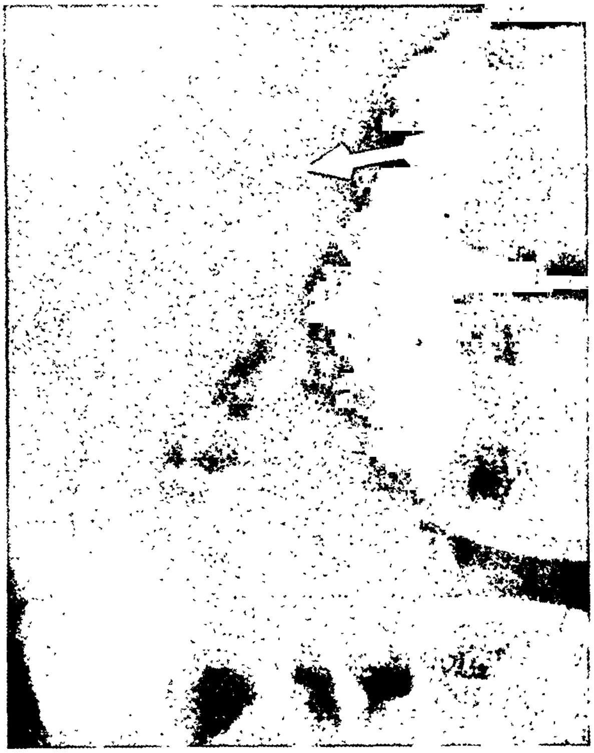

Fig. 2.—Common bile duct stricture. Roentgenogram demonstrating a slightly dilated common hepatic duct and an abrupt stenosis of the common bile duct (arrow) at the point where the cystic duct would normally enter it. The patient was a 36-year-old housewife, troubled by episodes of right upper quadrant pain, fever, and jaundice since cholecystectomy 10 years before.

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[7] Gray, H. K., and Sharpe, W. S.: Biliary Dyskinesia: The Role Played by a Remnant of the Cystic Duct, Proc. Staff Meet. Mayo Clin. 19:164 (March 22) 1944.

[8] Garlock, J. H., and Hurwitt, E. S.: The Cystic Duct Stump Syndrome, Surgery 29:833 (June) 1951.

[9] Kantor, H. G.; Evans, J. A., and Glenn, F.: Cholangiography: A Critical Analysis, A. M. A. Arch. Surg 70:237 (Feb.) 1955.

of time of the average technician when it comes to taking and marking films at precise intervals. An added difficulty is that of positively identifying a contrast agent in a duodenum partially obscured by the colon, the kidney, and the common bile duct itself.

Normal Common Bile Ducts.—In 15 patients with postcholecystectomy symptoms the common bile duct was of normal diameter and in every other way roentgenographically normal. In one obese individual without any evidence of hepatic insufficiency we were unable to demonstrate any common bile duct at all, probably for technical reasons.

CONTROL SERIES OF ASYMPTOMATIC PATIENTS

Forty-six patients (42 women and 4 men) from the follow-up surgical clinic who reported themselves free of any digestive symptoms after cholecystectomy agreed to have intravenous cholangiograms taken. The common bile ducts of 44 of these 46 were outlined (95.6%). Every type of duct lesion, including stones, that had been observed in patients with the postcholecystectomy syndrome was demonstrated in the control series (table 3). In terms of percentage, the incidence of duct disorders was almost identical in both series, and, though they were often small, cystic duct remnants were seen almost twice as frequently in the control group—28.3% as against 16.5%. Stones in the common bile duct were demonstrated in two asymptomatic patients. In one, a solitary stone was lodged at the junction of the right and left hepatic duct; in the other (fig. 4), the common bile duct was filled with faceted stones.

TABLE 2.—*Dimensions of Major Bile Ducts*

	Patients with Symptoms	Asymptomatic Control Patients
No. of Patients	121	46
Ducts Visualized	105 (87.0%)	44 (95.6%)
Mean common duct diameter	9 mm.	9 mm.
Ducts less than 8 mm. in diameter	38 (31.5%)	17 (36.9%)
Ducts more than 8 mm. in diameter	67 (55.5%)	27 (58.7%)
Dilatation the only abnormality	29 (24.0%)	19 (40.4%)
Calculus	11	2
Mean common duct diameter	15 mm.	14 mm.
Cystic duct stump	20	13
Mean common duct diameter	9 mm.	8 mm.
Stricture and adhesion	9	1
Mean common duct diameter	9 mm.	13 mm.

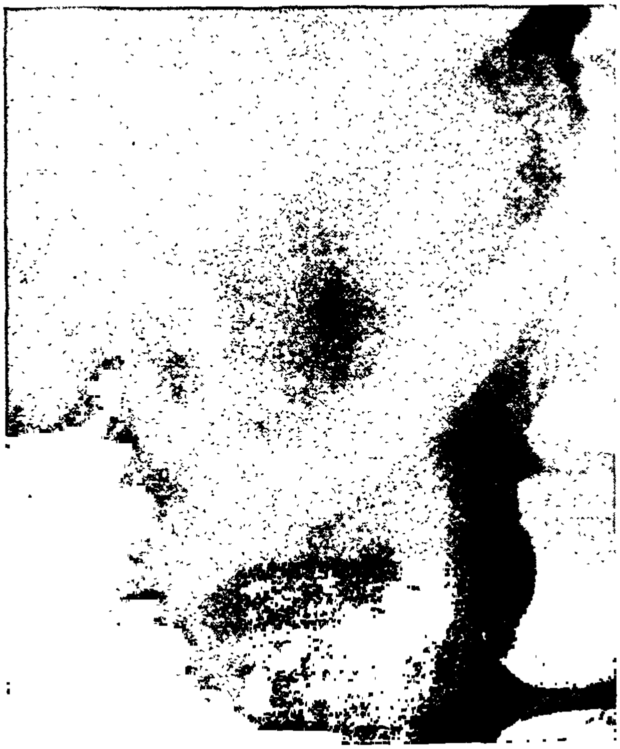

Fig. 3.—Roentgenogram, 20 minutes after injection of sodium iodipamide, showing a single triangular stone lodged in a dilated common bile duct. The patient was a 53-year-old housewife admitted to the hospital with clinical and electrocardiographic signs of coronary occlusion. Eight days later she began to vomit and complain of abdominal pain, and an intravenous cholangiogram was requested. The calculus was surgically removed, and she has since been well except for chronic coronary heart disease.

In both groups of patients the mean diameter of the common bile duct was the same—9 mm. (table 2). In both series stones in the common bile duct produced the most dilatation, and, in approximately 60% of symptom-free patients, the common bile duct was 8 mm. or more in diameter (fig. 5). There was a slight difference in the time required for the contrast agent to reach the duodenum (table 4). In 72% of the patients with postcholecystectomy symptoms sodium iodipamide could be identified in the duodenum within 30 minutes or less. In the control series this figure was 53%. The limitations of these statistics have already been described, but they do not suggest that any conspicuous stasis of bile occurs in the recurrent biliary tract syndrome.

TABLE 3.—*Comparison of Lesions of Major Bile Ducts in Patients with Symptoms and Asymptomatic Control Patients*

	Patients with Symptoms		Asymptomatic Control Patients	
	No.	%	No.	%
No. of patients	121	....	46	....
Ducts visualized	105	87.0	44	95.6
Total duct abnormalities	40	33.0	16	34.8
Cystic duct stumps	20	16.5	13	28.3
Strictures and adhesions	9	7.4	1	2.2
Calculi	11	9.1	2	4.3

COMMENT

The "silent" gallstone has been the subject of lively debate among clinicians.[10] Our results indicate that a stone may lie as silently in the common bile duct as in the gallbladder, a fact often presumed to be true.[11] The persistent cystic duct stump, always incriminated when found to be inflamed at operation, may also remain silent. In fact it often appears to do so.

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[10] Robertson, H. E.: Silent Gallstones, Gastroenterology 5:345 (Nov.) 1945.

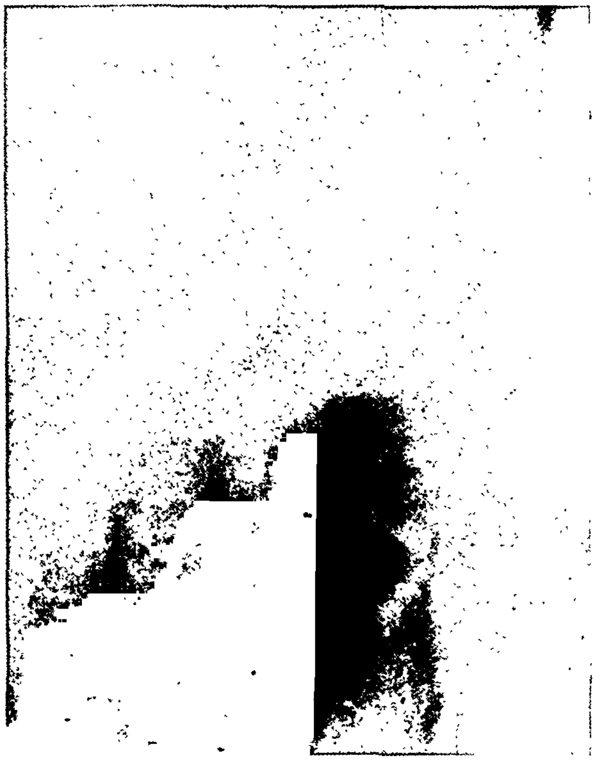

Fig. 4.—Tomogram showing silent stones in the common duct. The patient, a 40-year-old woman, had a cholecystectomy in 1952. She has since had no digestive complaints but was asked to have an intravenous cholangiogram as a postcholecystectomy control. Note the slightly dilated common bile duct, filled with faceted stones, and the wide, pendulous cystic duct stump.

In his experiments with dogs Oddi[12] observed that the common bile ducts of some mammals dilate after cholecystectomy. In 1926 Counseller and McIndoe,[13] using a celloidin-corrosion technique, reconstructed the biliary trees of 26 human subjects at autopsy. They found that when the liver and gallbladder were normal the diameter of the common bile duct did not exceed 5 mm. but that there was constant dilatation of the common bile duct immediately after cholecystectomy in subjects whose gallbladders contained unsuspected stones. They found liver atrophy and diffuse duct dilatation (hydrohepatosis) associated with choledochal obstruction of even a moderate degree. The intravenous cholangiograms we have described showed almost constant common bile duct dilatation after cholecystectomy, both in patients with and without symptoms. Whatever may be the mechanics involved—anatomic, hydraulic, or neurological—it seems likely that dilatation of the human common bile duct usually results when disease or surgical resection deprives it of a concentrating and distensible reservoir in the gallbladder.

TABLE 4.—*Time Required for Contrast Agent to Reach Duodenum*

	Patients with Symptoms		Asymptomatic Control Patients	
	No.	%	No.	%
No. of biliary ducts demonstrated	105	....	44	....
In duodenum				
15 min. or less	33	31.0	10	23.0
16-30 min	43	41.0	13	29.5
31-60 min	22	21.0	13	29.5
Not in duodenum in more than 60 min	5	5.0	5	11.0
Examination prematurely discontinued	2	2.0	3	7.0

We have shed little light on the problem of biliary dyskinesia and cannot offer any evidence of increased bile stasis in the common duct when patients with symptoms are compared with symptom-free controls. It may be that detailed measurements of the common bile duct and sphincter of Oddi would have shown a different reaction to antispasmodic drugs in the two groups.

SUMMARY

A series of intravenous cholangiograms of 121 patients, with pain and indigestion persisting after cholecystectomy, has been compared with a control series of 46 patients who were free of symptoms after the same operation. Common bile duct abnormalities were demonstrated in 33% of the patients with symptoms. These included cystic duct remnants (16.5%), calculi (9.1%). and adhesive bands and strictures (7.4%). Disorders of the common bile duct were demonstrated in 16 members of the control series (34.8%). These included cystic duct remnants (28.3%), calculi (4.3%), and adhesive bands and strictures (2.2%).

In both series the mean common bile duct diameter was 9 mm. and the greatest amount of common bile duct dilatation was caused by calculi. No significant bile stasis was shown in patients with postcholecystectomy symptoms; in these sodium iodipamide (Cholografin) appeared to reach the duodenum slightly earlier than in patients of the control group. Intravenous cholangiography is an efficient method of demonstrating possible causes of recurrent symptoms after cholecystectomy, but reasonable doubt may exist that the procedure has shown the actual cause of the patient's complaints. It is no substitute for sound clinical judgment.

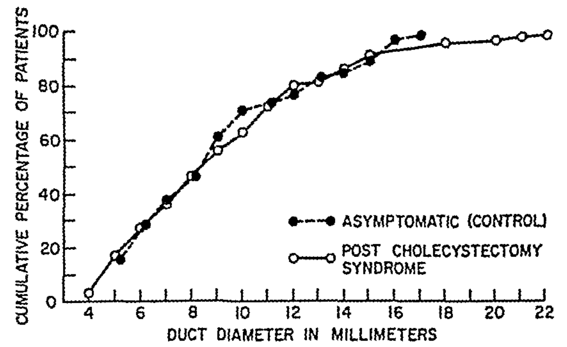

Fig. 5.—Chart of cumulative percentages showing the frequency with which ducts of specific size were demonstrated in symptomatic and control patients.

525 E. 68th St. (Dr. McClenahan).

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[11] Jordan, F. M., and Weir, J. F.: Stone in the Common Bile Duct, M. Clin. North America 15: 1529 (May) 1932.

[12] Oddi, R.: Results of Removing the Gallbladder, Bull. sc. med. 11: 194, 1888.

[13] Counseller, V. S., and McIndoe, A. H.: Dilatation of the Bile Ducts (Hydrohepatosis), Surg., Gynec. & Obst. 43: 729 (Dec.) 1926.

ORAL CHOLECYSTOGRAPHY WITH IOPANOIC ACID (TELEPAQUE)

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and
Harold Fulton, M.D., Detroit

Since the introduction of iopanoic acid (Telepaque) in 1951, extensive clinical application has demonstrated that this medium represents an ideal cholecystographic agent.[1] Iopanoic acid [β-(3-amino-2, 4, 6-triiodophenyl)-α-ethylpropionic acid] contains 66.68% iodine. This triiodide is readily absorbed by the small intestine and is excreted in the bile within two hours after oral administration. Maximum concentration in the gallbladder occurs at from 10 to 12 hours. Iopanoic acid is excreted mainly through the intestinal tract; elimination is rapid and complete within 48 hours. Toxic reactions to the medium are rare, and side-effects are minimal. In addition to providing visualization of the gallbladder, in a significant percentage of examinations the bile ducts, particularly the cystic and common ducts, are outlined.[2]

The accuracy of cholecystography in detecting the presence of gallbladder disease and cholelithiasis has been estimated at 99%.[3] This high degree of diagnostic reliability has made cholecystography one of the most accurate of roentgen tests. To fully exploit the diagnostic potentiality of a cholecystographic medium such as iopanoic acid, certain details of technique must be followed. To illustrate various features of cholecystography with iopanoic acid, the results in our series of 1,000 consecutive cholecystographic examinations are interspersed with our discussion.

DOSAGE

The manufacturers of iopanoic acid recommend a dose of 3 gm. for the average patient and 2 gm. for those patients "of thin or normal build, weighing less than 150 pounds. . . . If visualization of extrahepatic ducts is especially indicated, from five to six grams are recommended." Of the 910 (91%) patients in our series with visualized gallbladders, the orally given dose of iopanoic acid varied from 2 to 8 gm., depending on the patient's body weight. The mean dose was 3.47 gm. The cholecystographic density in each instance was tabulated as poor, fair, good, or excellent (table 1). The relative distribution of the degree of cholecystographic density in this series of patients is in accord with published observations.[1]

With the dosage of iopanoic acid even as high as 8 gm , no severe reactions occurred, and the unabsorbed contrast medium in the intestine never seriously interfered with cholecystography. In fact, the presence of iopanoic acid in the large intestine is positive evidence that the medium was ingested and had traversed the small intestine. It is questionable, however, if doses of iopanoic acid exceeding 3 gm. are necessary for accurate cholecystography. Many authors, particularly Christensen and Sosman [1a] and Whitehouse,[3b] believe that 2 gm. is sufficient for cholecystography in the average patient. Two personal observations support this idea. First, in 90 cases of nonvisualized gallbladders in the series of 1,000 examinations, a repeat cholecystography was done, usually employing a double dose of the contrast medium. In only four instances (4.4%) was the gallbladder visualized with the larger amount of iopanoic acid. In all of these four cases cholecystographic density on the second examination was poor. Therefore, in over 95% of those patients with nonvisualized gallbladders the smaller dose of iopanoic acid was adequate, and in 100% it allowed accurate prediction of severe gallbladder disease. Second, repeat study was done with smaller doses (1 or 2 gm.) in several patients in whom cholecystography with 2 or 3 gm. of iopanoic acid yielded excellent cholecystographic density. In all instances, excellent or good cholecystographic density resulted (fig. 1).

Although bile duct demonstration in oral cholecystography is directly dependent upon the degree of gallbladder opacification (table 2), it appears to be relatively independent of the orally given dose (table 3). The advisability of routinely employing doses of iopanoic acid greater than 3 gm. to enhance bile duct visualization is doubtful.

TECHNIQUE

The routine technique employed with the earlier orally given cholecystographic mediums has been applied to cholecystography with iopanoic acid. Although clinical results have proved satisfactory, it is noteworthy that, while the maximum concentration of iopanoic acid in the gallbladder occurs 10 to 12 hours after oral administration, sufficient medium for diagnostic purposes may be present [1c] 4 to 6 hours after oral administration. This fact can have useful clinical application, particularly in these days of rapid roentgenologic surveys.

Postcibum roentgenograms exposed after the standard fat meal or special liquid meal [1d] (an 8 oz. glass of eggnog containing the yolks of two eggs and 2 oz. of cream) are of particular significance in cholecystography with iopanoic acid. Bile ducts (cystic duct, common bile

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Read in the Symposium on Newer Contrast Media for Visualization of the Biliary Passages, before the Section on Radiology at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

1. (*a*) Christensen, W. R., and Sosman, M. C.: Preliminary Report on Telepaque, New Cholecystographic Medium, Am. J. Roentgenol. **66**: 764-768 (Nov.) 1951. (*b*) Morgan, R. H., and Stewart, H. B.: Clinical Experience with Telepaque, New Gallbladder Compound, Radiology **58**: 231-233 (Feb.) 1952. (*c*) Scott, W. G., and Simril, W. A.: Newer Radiopaque *Media for Oral Cholecystography, Am. J. Roentgenol.* **69**: 78-87 (Jan.) 1953. (*d*) Shehadi, W. H.: Telepaque: New Cholecystographic Medium with Improved Visualization of Gallbladder and Visualization of Bile Ducts, ibid. **68**: 360-368 (Sept.) 1952. (*e*) Whitehouse, W. M., and Martin, O.: A Comparative Clinical Study of Priodax and Telepaque, Including 1,000 Examinations, Radiology **60**: 215-220 (Feb.) 1953.

2. (*a*) Grugan, R. A.: An Oral Cholecystographic Method Using Telepaque with Demonstration of the Common and Cystic Ducts, Radiology **61**: 633-636 (Oct.) 1953. (*b*) Shehadi, W. H.: Oral Cholangiography with Telepaque, Am. J. Roentgenol. **72**: 436-451 (Sept.) 1954. (*c*) Sachs, M. D.: Visualization of the Common Duct During Cholecystography: Its Significance, ibid. **69**: 745-768 (May) 1953.

3. (*a*) Sosman, M. C.: Shattuck Lecture: The Specificity and Reliability of Roentgenographic Diagnosis, New England J. Med. **242**: 849-855 (June 1) 1950. (*b*) Whitehouse, W. M.: Correlation of Surgical Pathology with *Telepaque Cholecystography in Doses of 2 Grams, Surg. Gynec.* & Obst. **100**: 211-215 (Feb.) 1955.

duct, and common hepatic ducts) are opacified in a percentage of cholecystograms ranging from 50 [1d] to 91%.[2a] In our series the bile ducts were satisfactorily outlined in 58% of the cases in which the gallbladder was visualized. In these instances a single exposure was made approximately 20 minutes after ingestion of a standard fat meal. If additional postcibum roentgenograms had been exposed at 5 to 10 minute intervals in serial fashion, the percentage of bile duct visualization would undoubtedly have been increased. In none of the 534 patients in whom the bile ducts were demonstrated was there evidence of common duct stone or stenosis. In three cases in which the gallbladder was not visualized, a dilated common duct was shown, and in one of these ducts a solitary radiolucent calculus was delineated.

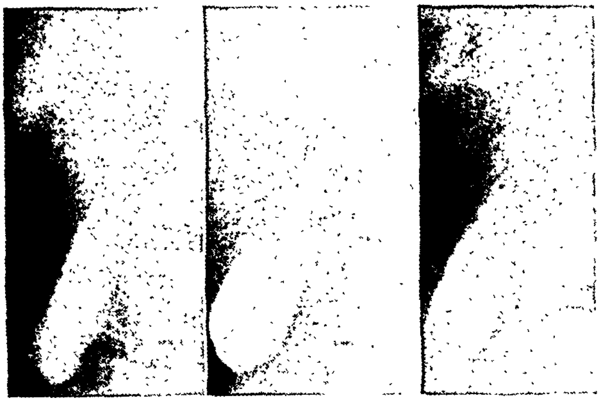

Fig. 1.—Cholecystograms of a 126 lb. (57.2 kg.) individual taken at monthly intervals, employing 3, 2, and 1 gm. of iopanoic acid respectively. Cholecystographic density is the same with each oral dose.

Table 1.—*Cholecystographic Density in 910 Patients*

	No.	%
Poor	68	7.5
Fair	208	22.8
Good	382	42.0
Excellent	252	27.7

Shehadi [2b] has stated, "In the present state of our knowledge we are justified in considering visualization of the hepatic duct as evidence of obstruction at a point distal to the hepatic duct. This may be temporary when spasm of the sphincter of Oddi occurs and the caliber of the hepatic duct remains normal." Visualization of the common hepatic duct, usually its distal 1 to 2 cm., was accomplished in 42% of our patients in whom the common bile duct was also visualized. In none of these cases was the diameter of the common bile duct greater than 7 mm.; at least one-half of the ducts were 3 mm. or less in diameter. It therefore appears that hepatic duct visualization is to be expected in a significant percentage of patients without evidence of organic obstruction of the common bile duct.

Table 2.—*Relation of Bile Duct Visualization to Cholecystographic Density*

	Duct Visualization, %
Poor	12
Fair	45
Good	63
Excellent	77

That exhibition of certain drugs such as morphine and neostigmine (Prostigmin) will enhance bile duct visualization during cholecystography by the mechanism of increase in sphincter (Oddi's) tone is well known. This method of producing bile duct opacification during oral cholecystography with iodoalphionic acid (Priodax)[2c] has been employed, but it is probably an unnecessary maneuver in cholecystography with iopanoic acid.

Table 3.—*Relation of Bile Duct Visualization to Dose of Iopanoic Acid*

Dose, Gm.	Duct Visualization, %
2	80
2.5	57
3	58
3.5	69
4	57

ROENTGENOLOGIC FACTORS

Cholecystography demands exacting roentgenologic technique. With modern roentgenographic equipment, exposures can be made at 0.1 to 0.3 second, at 200 to 400 ma., and with 70 to 80 kv. This kilovoltage range is important in the preservation of proper contrast between the opacified gallbladder and calculi or polyps. High kilovoltage studies (90-115 kv.) have, in our experience, proved inferior to the lower kilovoltage method, insofar as calculus detection is concerned. Routine roentgenograms (posteroanterior prone and oblique prone or supine) should be supplemented either by an upright or lateral decubitus exposure, the latter to detect small floating calculi or fundic sand. An initial

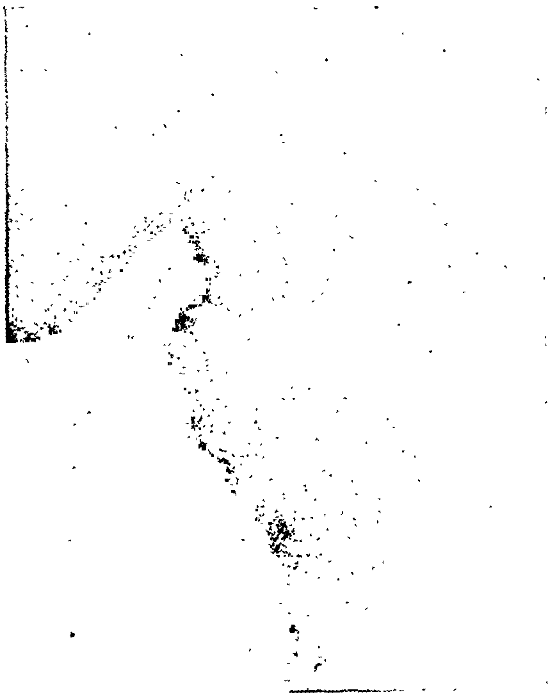

Fig. 2.—Routine cholecystogram showing excellent cholecystographic density, with no calculus visible.

exposure should be made on film of sufficient size to detect gallbladders of unusual or abnormal position; other exposures should be carefully "coned down" to insure maximum detail. It has been suggested that the high degree of opacification of the gallbladder frequently encountered in cholecystography with iopanoic acid may actually preclude on occasions roentgenographic demonstration of small calculi. Two techniques may obviate this possible source of cholecystographic error—spot-filming and body section roentgenography.

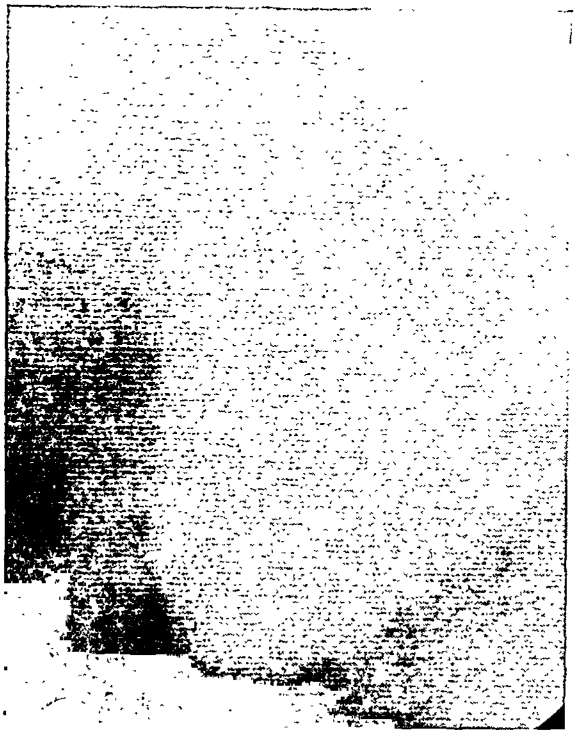

Fig. 3.—Spot pressure roentgenogram demonstrating multiple small opaque calculi.

The density of the filled gallbladder obtained in cholecystography with iopanoic acid allows satisfactory visualization by fluoroscopy. The gallbladder can thus be palpated, displaced, and, more important, compressed under roentgenoscopic guidance, and film records can be made by the spot-film technique. Lubert and Krause [4] describe this technique in detail and mention a clear space just lateral to the lumbar spine, overlying the apex of the right psoas muscle, where both the colon and descending duodenum are usually avoided and the pressure on the gallbladder is most effective. Spot-filming of the gallbladder in preference to roentgenograms with the patient in the upright or decubitus position (Bucky film) is used by these authors routinely, except where stones are obvious on the routine roentgenograms. In our experience, spot-filming is practical only in those patients in whom gallbladder density is good or excellent, but in an occasional patient it may prove essential for proper diagnosis (fig. 2 and 3). Mobility of the gallbladder and flexibility of its wall, as determined by palpation under fluoroscopy, have no practical importance, and attempts at manual expression of contrast medium from the gallbladder, with subsequent filling of the bile ducts, have proved unsuccessful.

Another method for visualization of obscured calculi is body section roentgenography.[5] This is a time-consuming technique that requires special equipment and that is applicable in those rare cases in which overlying intestinal shadows prevent satisfactory demonstration of the gallbladder by the usual roentgen methods (fig. 4). Fluoroscopy and spot-filming in general are to be preferred to body section roentgenography.

Demonstration of the extrahepatic bile ducts during oral cholecystography requires precise roentgenographic technique. Although this particular phase of cholecystography may be accomplished with the patient in a prone position, the supine position, with the patient's left side elevated 10 to 15 degrees from the table top, seems to be the most advantageous. If the examination is performed on a tilt table, use of the Trendelenburg position (patient's head 20 to 25 degrees below the horizontal plane) will serve to augment bile duct opacification.

COMMENT

One thousand consecutive cholecystograms in which iopanoic acid was used, performed within a period of 11 months at Harper Hospital, were reviewed and critically analyzed. In 91% the gallbladder was visualized; in 9% no visualization of the gallbladder resulted. Calculi were demonstrated in 15% of the visualized gallbladders and in 18% of the patients without gallbladder opacification. In addition, there were two examples of limy bile, in one of which cholesterol-type calculi were delineated by the liquid calcium carbonate within the

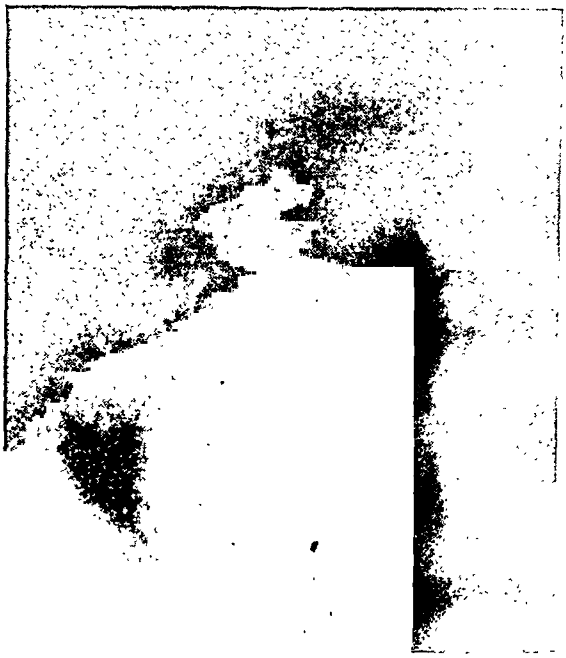

Fig. 4.—Laminagraphic demonstration of solitary cholesterol-type calculus, obscured by overlying intestinal gas on routine cholecystograms.

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[4] Lubert, M., and Krause, G. R.: Upright Cholecystography Using the Fluoroscopic Spot-Filmer with Graded Compression, Radiology 61: 879-884 (Dec.) 1953.

[5] Ahlemann, H. R., and Lange, L.: Cholezysto-Tomographie und Gallenblasen-Leertomographie, Fortschr. Geb. Röntgenstrahlen 78: 554-565 (May) 1953.

gallbladder lumen. In three patients with excellent opacification of the gallbladder a papilloma was demonstrated roentgenographically. Thus, in 33.3% of the patients studied, significant gallbladder disease was discovered cholecystographically with iopanoic acid.

Bile ducts (cystic and common ducts) were outlined satisfactorily in 58% of the total cases. In none of the patients with visualized gallbladders was the common duct abnormal. In three patients whose gallbladders could not be visualized, a dilated common duct was shown, and in one of these latter patients a nonopaque calculus was present in the common duct. The common hepatic duct, usually its distal 1 to 2 cm., was outlined in 42% of the patients in whom the common bile duct was visualized.

CONCLUSIONS

Iopanoic acid (Telepaque) is in our opinion almost an ideal cholecystographic agent. With iopanoic acid the accuracy of oral cholecystography in detecting the presence of gallbladder disease and cholelithiasis approaches 100%. In addition, the cystic, common, and hepatic bile ducts can be visualized in from 50 to 100% of patients with functioning gallbladders. Certain details in the use of this contrast medium and the cholecystographic and roentgenographic techniques employed are significant in attaining the high degree of diagnostic reliability inherent in this medium. Results in a series of 1,000 consecutive cases illustrate selective features of cholecystography with iopanoic acid.

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EXPERIENCE WITH FIVE ORALLY GIVEN CHOLECYSTOGRAPHIC MEDIUMS

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The history of cholecystography has been reviewed in the literature.[1] Iodophthalein sodium (Iodeikon), producing a high degree of cholecystographic accuracy, was the first orally given cholecystographic medium to be popularized. In fact, it is doubtful whether the administration of subsequent orally given mediums actually has increased the accuracy of diagnosis for cholecystic disease. The chief objections to iodophthalein sodium were its disagreeable taste and the high incidence of nausea, vomiting, and diarrhea following oral administration. Iodoalphionic acid (Priodax) was tolerated much better and almost universally replaced iodophthalein sodium. Monophen, 2-(4-hydroxy-3,5-diiodobenzyl)-cyclohexane carboxylic acid, although well tolerated and capable of producing equally good cholecystograms, never became popular and is no longer manufactured. Although iodoalphionic acid is employed occasionally, iopanoic acid (Telepaque) and iophenoxic acid (Teridax) are the cholecystographic mediums used most frequently today.

It is generally agreed that an ideal orally given cholecystographic medium should produce a gallbladder shadow of sufficient density to clearly outline the organ, yet permit sufficient penetration by the x-ray beam to show filling defects produced by opaque and nonopaque stones. Also, it is desirable, but not always possible, to simultaneously outline the cystic duct. The medium should be well tolerated and produce few reactions. It should be completely absorbed and leave no opaque residue in the intestine. In our paper, the following five orally given cholecystographic mediums will be discussed: iodophthalein sodium, iodoalphionic acid, Monophen, iopanoic acid, and iophenoxic acid.

CLINICAL INVESTIGATION

Each of the five mediums were investigated and then compared for (1) quality of the cholecystograms produced, (2) side-effects encountered, and (3) production of pseudoalbuminuria. With the exception of iodophthalein sodium, the action of each drug was observed in 100 patients after administration. (At the time of our investigation iodophthalein sodium was no longer being manufactured so that our studies with this medium were limited by a small donated reserve.) In the attempt to produce cholecystograms of optimal density, with the gallbladder shadow distinctly visible but not obscuring stones, we concluded that the following dosages most completely and consistently met our needs: iodophthalein sodium, 4 gm.; iodoalphionic acid, 3 gm.; Monophen, 3 gm.; iopanoic acid, 2 gm.; and iophenoxic acid, 3.8 gm.

A relatively small dosage of iopanoic acid (2 gm.) produces a gallbladder shadow of optimal quality. With larger doses, it is frequently possible to visualize the cystic duct, occasionally demonstrating stones or other abnormalities. Sehested[2] has demonstrated that after a fat meal the gallbladder may express its contents on an average of every two minutes. Since the cystic duct is visualized only while the gallbladder is expressing its contents, it is by chance that a cholecystogram is made at the proper moment for visualization of the duct, the chance being best when the exposure is made 15 to 20 minutes after the fat meal. Accordingly, reports of visualization of the cystic duct vary from 10 to over 50%.

From the Department of Radiology (Dr. Seedorf) and the Department of Clinical Pathology (Dr. Powell), Scott and White Clinic. Dr. Seedorf is now affiliated with the Hanna Clinic, Peoria, Ill.

Read in the Symposium on Newer Contrast Media for Visualization of the Biliary Passages, before the Section on Radiology at the 104th *Annual Meeting of the American Medical Association, Atlantic City, June* 9, 1955.

Iodophthalein sodium was contributed by the Sisters of St. Francis Hospital, La Crosse, Wis. Monophen was furnished for this study by Bell-Craig, Inc., New York; iopanoic acid (Telepaque) by Winthrop-Stearns, Inc., New York; and iophenoxic acid (Teridax) by Schering Corporation, Bloomfield, N. J.

[1] Seedorf, E. E.; Powell, W. N., and Dysart, D. N.: A Comparison of Five Gallbladder Media, South. M. J. 47: 809-813 (Sept.) 1954.

[2] Sehested, H. C.: Study of the Gallbladder and the Common Duct by Oral Dye, Texas J. Med., to be published.

Iodoalphionic acid, iopanoic acid, and iophenoxic acid, in varying dosages, are of apparently equal value for establishing a correct cholecystographic diagnosis. In our institution, we have attempted to produce a gallbladder shadow of slightly greater density than that previously produced with 3 gm. (6 tablets) of iodoalphionic acid. This was achieved with 2 gm. (4 tablets) of iopanoic acid. Our objection to this medium is that it frequently became difficult to differentiate between the opaque residue of iopanoic acid seen in the intestine and the calcification within the abdomen. We now employ iophenoxic acid and have found, as no doubt would be true with other cholecystographic mediums, that prescribing the dosage of iophenoxic acid on the basis of body weight produces a greater uniformity in the gallbladder density. We have definitely reduced the number of reexaminations among heavier individuals. The recommended dosage of iophenoxic acid, according to weight of the patient, can be found in table 1.

TABLE 1.—*Dosage of Iophenoxic Acid as Determined by Weight of Patient*

Iophenoxic Acid Tablets	Weight, Lb.
4 (3.0 gm.)	Under 125
5 (3.8 gm.)	125 to 175
6 (4.5 gm.)	175 to 200
7 (5.3 gm.)	Over 200

COMMENT

Although we have no statistics to support our assumption, our experience indicates that the number of reexaminations necessary, due to obscuring gas, has been considerably less with iophenoxic acid than with iodoalphionic acid. Early in 1954, an allotment of iophenoxic acid, causing opaque residue in the intestine due to incomplete dissolution of the tablets, was distributed through trade channels; these were taken off the market and replaced by more refined ones. No opaque residue caused by the medium has been reported with the use of the improved tablets.

A report of untoward reactions from use of iodophthalein sodium (table 2) encountered in 600 patients was published in 1934 by Newell and Leef.[3] This report compares closely with reactions subsequently reported by other authors for smaller series of patients. The disagreeable taste of the drug frequently produced nausea, and diarrhea was a common complaint. Unfug[4] observed that the drug caused a 4% incidence of dysuria. Cholecystographic drugs introduced since, and including, iodoalphionic acid produce less frequent and severe diarrhea. Dysuria of short duration occurs most often, since the medium is primarily excreted by the kidneys. Table 2 shows all the drugs produce untoward reactions of about the same frequency and intensity; however, they are usually of short duration and are not severe enough to contraindicate use of a specific medium.

TABLE 2.—*Side-Reactions with Cholecystographic Mediums*

	Mediums				
Side-Reactions	Iodophthalein Sodium, %	Iodoalphionic Acid, %	Monophen, %	Iopanoic Acid, %	Iophenoxic Acid, %
Dysuria	4*	48	23	29	36
Diarrhea	45†	38	13	39	31
Abdominal cramps	21†	21	19	29	25
Headache	15†	21	27	29	20
Nausea	53†	17	28	17	26
Dizziness	...	15	14	16	24
Allergic phenomena	...	4	7	4	4
Visual disturbances	...	2	4	6	3
Vomiting	9†	0	0	1	4
Miscellaneous	9† (Chills)	4	0	4	8

* Reported by Unfug.[4]
† As recorded by Newell and Leef.[3]

Previous publications[5] have recorded an incidence of pseudoalbuminuria, from 14 to 17%, occurring the day after ingestion of the orally given cholecystographic mediums iodoalphionic acid, Monophen, iopanoic acid, and iophenoxic acid. With all mediums, a false-positive test for albumin in the urine persisted for two to three days in a few patients. It is significant that, if the hot Exton's reagent is allowed to cool before interpretation, chance of error in reporting albuminuria is greatly increased (table 3). As report of albumin in urine can mar a patient's health record for further insurance consideration, pseudoalbuminuria is significant.

TABLE 3.—*Incidence of Pseudoalbuminuria*

		Pseudoalbuminuria, %	
Cholecystographic Mediums	Gm.	Exton's Reagent, Hot	Exton's Reagent, Cold
Iodophthalein sodium (8 patients)	4.0	0	50
Iodoalphionic acid	3.0	14	60
Monophen	3.0	17	65
Iopanoic acid	2.0	15	43
Iophenoxic acid	3.8	14	63

SUMMARY

Iodoalphionic acid (Priodax), iopanoic acid (Telepaque), and iophenoxic acid (Teridax) are the cholecystographic mediums used almost exclusively in the United States. Although they differ in chemical structure, they are tolerated quite similarly. Cholecystograms are of about the same diagnostic value, and, by adjustment of the dosage, gallbladder shadows of similar density can be obtained with all three mediums. Few reactions are produced, but, although it is reported infrequently, the occurrence of pseudoalbuminuria is significant. Iopanoic acid apparently is capable of producing the gallbladder shadow of greatest density and probably excels in demonstration of the extrahepatic ducts. It has the disadvantage, however, of producing an opaque residue in the intestine, which may be confused with shadows from calcification within the abdomen. Iophenoxic acid, with its dosage regulated according to the weight of the patient, is now used exclusively in our institution. It produces a sharply outlined, homogeneous gallbladder shadow and leaves no confusing residue.

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3. Newell, R. R., and Leef, E.: Cholecystography with Tetraiodophenolphthalein by Mouth: Experience with Regard to Success and Untoward Reactions, Radiology **23**: 31-34 (July) 1934.

4. Unfug, G. A.: A Comparative Clinical Investigation of Cholecystographic Preparations, Radiology **46**: 489-495 (May) 1946.

5. Seedorf and others.[1] Seedorf, E. E.; Powell, W. N.; Greenlee, R. G., and Hartman, J. T.: Priodax and Pseudoalbuminuria, Radiology **55**: 740-742 (Nov.) 1950. Seedorf, E. E.; Powell, W. N.; Greenlee, R. G., and Dysart, D. N.: Pseudo-Albuminuria Following Monophen and Priodax, ibid. **59**: 422-423 (Sept.) 1952. Seedorf, E. E.; Powell, W. N.; Greenlee, R. G., and Dysart, D. N.: Telepaque and Pseudoalbuminuria, J. A. M. A. **152**: 1332-1333 (Aug. 1) 1953.

CLINICAL NOTES

PRODUCTION OF PREMATURE VENTRICULAR CONTRACTIONS BY RAUWOLFIA

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Alkaloids of Rauwolfia serpentina (Ophioxylon serpentinum) are currently enjoying great popularity for treatment of a wide variety of disorders, ranging from insanity to various forms of hypertension. While this drug has been in use for many years in India, a large pharmacological literature is not available.[1] Allen and co-workers,[2] in discussing its use in hypertension, state that it "inhibits sympathetic system and reduces blood pressure by direct action on hypothalamus. Apparent parasympathomimetic action. Produces tranquility without somnolence." Toxic symptoms are said to include nasal congestion and stuffiness, mild bradycardia, sedation, muscular aching and stiffness, laxation, and at times nightmares and mental depression.[3] Paresthesias, twitching of the limbs, chattering of the teeth,[4] and pruritus [5] have also been reported. We wish to report an additional and possibly significant toxic effect—ventricular premature contractions.

We have been unable to find any report suggesting cardiotoxic effects. In August, 1953, one of us (B. N. W.) first noted the occurrence of ventricular premature contractions in a patient receiving the powdered whole root of Rauwolfia serpentina, Raudixin, for the control of hypertension (case 1). Since that time, careful observation of patients receiving this medicament has revealed three additional cases. In three instances, there has been moderate to severe associated symptomatology necessitating withdrawal of the drug, and, in two instances, reinstitution of the drug has caused recurrence of the symptomatology and ventricular premature contractions.

REPORT OF CASES

CASE 1.—A 46-year-old female, known to have had severe hypertension of 20 years' duration, sustained an acute myocardial infarction in 1946 and in 1948. She developed mild congestive failure in 1950, requiring treatment with digitalis and diuretics, which has been continued since that time. There was progressive evidence of peripheral arteriosclerosis with gangrenous lesions of the toe of the right foot and, in 1953, a gangrenous lesion on the left middle finger. In July, 1953, the patient's blood pressure was 240/130 mm. Hg, and she was started on Raudixin therapy, 100 mg. twice daily. Two weeks later she was forced to discontinue taking Raudixin because of irregularity of the pulse. A doctor did not examine her at this time. She stopped taking Raudixin for one week, after which time she felt that her pulse was regular. On resuming treatment with the medicine, she noted that within two days' time the pulse tended to be irregular again, and on examination at this time she was found to have a rhythm of frequent ventricular premature contractions, at times amounting to a bigeminal rhythm. Raudixin therapy was discontinued, and subsequent examinations have not shown a return of the premature ventricular contractions.

CASE 2.—On Aug. 19, 1954, the blood pressure of a 42-year-old female was 210/120 mm. Hg when she consulted another physician for menorrhagia. On Aug. 25, 1954, treatment with Raudixin, 100 mg. twice a day, was begun. On Sept. 7, 1954, the patient's blood pressure was still 220/120 mm. Hg. The examination of the heart showed a bigeminal rhythm due to premature ventricular contractions, and she complained of considerable weakness. Raudixin therapy was discontinued, and three days later the pulse was regular with no premature ventricular contractions. Treatment with Raudixin was resumed at a lower dosage level, with only 100 mg. daily being administered, but was discontinued two weeks later because the patient felt that it made her weak. She had not, however, noted any return of the premature ventricular contractions on the smaller dosage schedule.

CASE 3.—A 60-year-old female complaining of high blood pressure and heart trouble was seen in February, 1949. Medical history revealed diphtheria at the age of 8 years and pneumonia during the influenza pandemic in 1918. Appendectomy had been performed in 1945, at which time her blood pressure was said to have been normal. Physical examination revealed a well-nourished, well-developed female with moderate funnel chest. Blood pressure was 140/92 mm. Hg. There was no cardiac enlargement. A grade 1 mitral systolic murmur was present. The remainder of the physical examination and chest fluoroscopy were not remarkable. An electrocardiogram was normal.

When seen in April, 1954, she complained of shortness of breath and epigastric fulness that occurred after meals and was aggravated by all forms of fat. Review of systems revealed fatigue and shortness of breath on minimum exertion. Physical examination was negative with the exception of grade 1 hypertensive retinopathy, blood pressure of 170/110 mm. Hg, and tenderness in the right upper quadrant. A Graham-Cole test showed a nonfunctioning gallbladder, and cholecystectomy was recommended but declined. The patient was started on therapy with Raudixin, 100 mg. twice a day, and Cholan HMB with phenobarbital (dehydrochloric acid, homatropine methylbromide, and phenobarbital).

She was next seen in September, 1954, during an attack of gallbladder colic. She was still taking Raudixin, 50 mg. twice a day, but had stopped taking Cholan HMB. Blood pressure was 150/80 mm. Hg. She was admitted to the hospital and cholecystectomy was done on Sept. 7, 1954. On the third postoperative day Raudixin therapy was started again. The following morning multiple premature ventricular contractions were noted. These became progressively more severe, and Raudixin therapy was discontinued on the fifth postoperative day when they persisted despite administration of quinidine sulfate, 0.2 gm. four times a day. The following two days, no premature ventricular contractions were noted, and Raudixin was administered for one day. Multiple premature ventricular contractions recurred with moderate subjective distress. Raudixin therapy was discontinued, and the premature ventricular contractions again disappeared. The postoperative course was otherwise uneventful, and a one month follow-up showed no recurrence of the premature ventricular contractions. Blood pressure remained in the range of 140/80 mm. Hg.

CASE 4.—A 56-year-old female was first seen in March, 1952, with neuropathy of facial nerve (Bell's palsy), at which time her blood pressure was 150/100 mm. Hg. In the three months that followed she was seen on four occasions for minor complaints, and her blood pressure ranged from 140/90 mm. Hg to 150/100 mm. Hg. In September, 1953, she was seen for routine examination, and blood pressure was found to be 220/120 mm. Hg. An electrocardiogram was within normal limits. She was asymptomatic at this time. Raudixin therapy, 100 mg. twice a day, was started in November, 1953, for several weeks without apparent results and was discontinued. In Feb-

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From the Medical and Surgical Clinic.

[1] Wilkins, R. W., and Judson, W. E.: The Use of Rauwolfia Serpentina in Hypertensive Patients, New England J. Med. **248**: 48-53 (Jan. 8) 1953.

[2] Allen, E. V., and others: Medical Treatment of Essential Hypertension, Proc. Staff Meet. Mayo Clinic. **29**: 459-478 (Aug. 25) 1954.

[3] Freis, E. D.: Mental Depression in Hypertensive Patients Treated for Long Periods with Large Doses of Reserpine, New England J. Med. **251**: 1006-1008 (Dec. 16) 1954.

[4] Douthwaite, A. H.: Rauwolfia in Hypertension, Lancet **1**: 1345 (June 26) 1954.

[5] Joiner, C., and Kauntze, R.: Arterial Hypertension Treated with Rauwolfia Serpentina and Veratrum Viride, Lancet **1**: 1097 (May 29) 1954.

ruary, 1954, her blood pressure was 190/170 mm. Hg. A test for pheochromocytoma with phentolamine (Regitine) was negative. Raudixin therapy, 100 mg. twice a day, was again started, and blood pressure fell to 160/100 mm. Hg one month later. Therapy was continued, and on Sept. 1, 1954, blood pressure was 160/100 mm. Hg. On Nov. 1, 1954, the patient felt faint while shopping and complained of fluttering in the chest. Blood pressure was 120/80 mm. Hg, and an electrocardiogram showed multiple unifocal premature ventricular contractions. Raudixin therapy was discontinued, and the patient was started on quinidine sulfate therapy, 0.2 gm. four times a day. Examination two weeks later showed her blood pressure to be 180/100 mm. Hg. The patient was asymptomatic. There were no premature ventricular contractions.

COMMENT

Currently available preparations of Rauwolfia serpentina may be divided into three general groups: the crude root (Raudixin); alkaloidal extracts containing the alseroxylon fraction (Rauwiloid and Rautensin); and the single alkaloid, reserpine (Serpasil, Sandril, Reserpoid, Serpiloid, and Rau-Sed). We have used the crude root more extensively and for a longer period of time, and it will be noted that all of the above reported cases are instances of its use. However, we have seen several cases, somewhat less well-defined than the above, in which the use of the single alkaloid, reserpine, has apparently produced similar toxic reactions.

We are unable to determine the percentage incidence of such toxic reactions but suggest that it may not be uncommon. Explanation of the etiology or mechanism of production is problematical, but it is interesting to speculate on the possibility that the bradycardia may allow a so-called irritable focus in the ventricle to become manifest, since most of our patients had organic disease. The possibility of sensitization of the myocardium would be of greater moment and suggests that caution should be exercised in the use of this drug in patients with arrhythmias, myocardial infarction, and severe cardiac damage.

SUMMARY AND CONCLUSIONS

Preparations of Rauwolfia serpentina are being frequently used in hypertension and other conditions. According to the present literature, toxic reaction is infrequently manifest and usually benign. In four cases in which the patients were given Raudixin, a preparation of the crude root, the drug apparently produced premature ventricular contractions. We suggest that the drug be administered with caution in cases of cardiac disease.

1100 S. Beckham (Dr. Wimberley).

"PRECORDIAL CATCH," A NEGLECTED SYNDROME OF PRECORDIAL PAIN

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During the last two years we have become increasingly aware of a syndrome of left-sided anterior chest pain in young healthy individuals. There is much literature on the differential diagnosis of precordial pain, but we have been unable to find any clear-cut references to the relatively common symptom complex here discussed, which we have termed "precordial catch." The following case history presents its essential features.

REPORT OF A CASE

A 24-year-old housewife complained of recurrent attacks of severe left anterior chest pain. The pain, described as sharp and knife-like, was felt just below the left breast. It had occurred four times in the preceding two days. The first episode was typical. The patient was relaxed in an easy chair watching television when she suddenly experienced a sharp, severe pain under the left breast. This pain remained localized and caused her to hold her breath. Attempts to breathe were associated with aggravation of the pain, "as if something were catching" when she attempted an inspiration. Assuming an upright posture, with the shoulders thrown back, eased the pain somewhat. Finally, after an estimated minute or two, she forced a deep inspiration in spite of the pain. This inspiration was almost immediately associated with complete relief from the pain, though a vague ache persisted in the anterior left chest for a short time thereafter.

The patient's history was totally negative except for the usual childhood diseases. Physical examination revealed no abnormalities. In particular, there was no tenderness over the left anterior chest. The blood pressure was 100/70 mm. Hg. The pulse rate was 70 per minute, with a regular cardiac rhythm. An electrocardiogram showed a sinus rhythm and was within normal limits. The heart was "electrically vertical" in position. Cardiac fluoroscopy revealed a vertically placed heart with no evidence of chamber enlargement. The lung fields were clear. A chest x-ray was negative.

One of us (A. J. M.) has had similar bouts of pain on rare occasions. The pain is sudden in onset, is severe, and is localized above the cardiac apex (fifth intercostal space within the left midclavicular line). It has always occurred at rest or during mild activity and invariably has been associated with a "slouched" posture. The immediate reaction to the pain is a suspension of breathing in midrespiration or in expiration, though the pain itself has always come at or near the peak of an ordinary inspiration. Breathing is then confined to shallow chest excursions. This always eases the pain; attempts to take a full inspiration aggravate it. Assuming a correct posture tends to ease it. On two occasions forced inspirations have relieved the pain completely. At other times relief occurred after maintaining shallow respiration with the chest in the midrespiratory or expiratory position. At no time has there been an area of precordial tenderness, and at no time has the pain radiated. The total duration of pain has been estimated as from one-half to three minutes. Its frequency has been sporadic, varying from three episodes in one evening to one episode in six or eight months. It has never occurred during exertion.

Ten patients studied in detail ranged in age from 22 to 35 years; there were five men and five women. Eight of these persons were seen in the office, and six came because of concern about their heart or lungs. One man, whose father had died after suffering a period of angina pectoris, was convinced that he suffered from a similar disease. A woman with a history of childhood rheumatic fever and a negative examination was worried that she now had rheumatic heart disease. Two of the 10 patients included in this report were physicians. However, essentially identical histories have been obtained from at least five other physicians who have not been

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examined or studied. These latter histories were volunteered during informal discussions.

The pain has been variously described by different patients. The adjectives used include "knife-like," "piercing," "burning," and "sharp." All 10 of the patients stated the pain to be severe. Two of them suggested that "it is as if something catches," and most of the other patients have agreed that this is an appropriate description. The sensation of "something being caught" is particularly apparent when a deep inspiration is attempted after the onset of the pain. Shallow respiration with the chest in the midrespiratory or expiratory position is a usual reaction to the pain. At no time has dyspnea been a part of the picture. The association with poor posture or with bending over has been frequent. Some patients have forced inspirations to relieve the pain. Correction of posture has often resulted in some relief, though two patients have reported "inability" to straighten up from a bending position because of the pain. The onset of the pain is invariably during rest or mild activity. The most strenuous activity reported was that by a woman who was bent forward mopping the kitchen floor. One patient developed the pain while raking leaves. Another patient got the pain when he bent forward to get out of his automobile. One patient usually experienced the pain while walking. He would continue to walk at essentially the same pace. However, other patients stated that "freezing" in the position at which the pain came was the usual reaction. All patients experienced the "attacks" more than once, and at all times the pain was sudden in onset.

No patient reported tenderness at the site of the pain, and tenderness was not elicited at any time during physical examination. No nodules or deformities have been palpated. The pain is always at or above the cardiac apex. One of the 10 patients reported a similar pain in the right anterior chest on one occasion. All the patients have been of thin or medium body build. There has been no apparent correlation of the occurrence of these pains with previous illnesses, physical abnormalities, laboratory studies, hyperventilation, or any other factors that are known to at times result in precordial pain. There has been no consistent correlation with upper respiratory infections, preceding heavy exertion, or emotional disturbance. One patient suffered from a chronic anxiety state. Two patients had mild bronchitis, undoubtedly aggravated by cigarette smoking. Five of the 10 patients smoked cigarettes, with 3 of them being rather heavy smokers. One patient had a history of a contusion of the anterior chest wall two years previously in an automobile accident. Another patient with an otherwise negative examination had an incomplete right bundle-branch block on the electrocardiogram.

There have been certain consistent findings that appear worthy of emphasis: 1. All the patients have been of light or medium body build. 2. The pain is severe, sudden in onset, does not radiate, and is regularly located near or above the cardiac apex. 3. The pain occurs at rest or during mild activity and is frequently related in onset to a "bent over" posture. 4. All the patients have been below the age of 35 years, and there has been no particular sex incidence.

COMMENT

It is not our intent to report this syndrome of precordial pain as a new and previously unnoted entity. On the contrary, many of our colleagues have known of the occurrence of such pains and have themselves recognized them to be of no serious consequence. Nevertheless, the literature that we have reviewed (primarily articles on the differential diagnosis of precordial pain) generally ignores what is obviously a common condition and one that has importance in its confusion by some with either heart disease or disease of the lungs or pleura. We are reporting 10 illustrative cases to emphasize the absence of heart, pleural, or pulmonary disease. A careful history readily determines the diagnosis and should avoid any confusion of this condition with underlying organic pathology.

The term "precordial catch" appears to be appropriate and makes no attempt to indicate the etiology of the pain. It is our feeling that the pain most likely arises from the parietal pleura. Though we can by no means completely rule out the chest cage, its musculature, or its innervation as the source of pain, there are certain factors that speak against this possibility. There is no associated muscle tenderness, and there is no local chest deformity. No abnormalities of the spine have been found. The pain is localized and never radiates. It is a severe pain and undoubtedly would be recognized if it occurred on the right of the chest; hence, we consider its unilateral occurrence to be further evidence against its source being in rib, chest, muscle, spine, or intercostal nerve. One may speculate that the pain is essentially precordial because its origin is in some way related to the reflections of the pleura in relation to the heart. There is no evidence to show a cardiac origin.

SUMMARY

A common syndrome of precordial pain in essentially healthy persons has three major aspects: 1. All the patients have been of light or medium body build; they have been below the age of 35 years, and there has been no particular sex incidence. 2. The pain is severe, sudden in onset, does not radiate, and is regularly located near or above the cardiac apex. 3. The pain occurs at rest or during mild activity and is frequently related in onset to a "slouched" or "bent over" posture. This benign syndrome should be considered in any differential diagnosis of precordial pain.

Cerebral Palsy.—The physician responsible for the care of the cerebral-palsied child can scarcely escape the certainty that treating cerebral palsy will never do. The goal must be prevention. A clearer understanding of the mechanisms of neonatal asphyxia needs to be gained by controlled studies of infants with complicated deliveries. It is essential that further data be obtained from a representative variety of obstetrical sources and that follow-up procedures provide for accurate diagnosis of the children under investigation. In a research program of this scope and direction lie some of the most promising leads for the prevention of cerebral palsy.—R. V. Fuldner, M.D., Cerebral Palsy: Where Next? *A. M. A. Archives of Neurology and Psychiatry,* September, 1955.

COUNCIL ON PHARMACY AND CHEMISTRY

PROVISION FOR NOTICE OF CHANGES IN OPERATION

To govern notice of changes in the Council's method of operation, the following paragraph has been adopted by the Council for inclusion at the end of the previously adopted New Program of Operation for Evaluation of Drugs (*J. A. M. A.* **158:**1170-1171 [July 30] 1955):

When changes in the purpose, principles, or procedure of the Council occur, notice will be given in its column of THE JOURNAL.

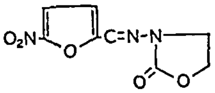
H. D. KAUTZ, M.D., *Secretary.*

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

H. D. KAUTZ, M.D., *Secretary.*

Furazolidone.—$C_8H_7N_3O_5$.—M.W. 225.17.—N-(5-nitro-2-furfurylidene)-3-amino-2-oxazolidone.—The structural formula of furazolidone may be represented as follows:



Actions and Uses.—Furazolidone is a nitrofuran derivative proposed for the treatment of a gynecologic protozoan infection, Trichomonas vaginalis vaginitis. Other members of this class of compounds have been found to have antibacterial properties. The use of furazolidone as an antitrichomonal agent is based upon case reports of four clinical observers employing a powder for vaginal insufflation containing 0.1% of the agent with 0.2% citric acid in 51+% lactose and 48+% dextrose. These observers also used vaginal suppositories for daily and nightly insertion, each containing 0.25% of the agent in a base of 13+% dendropalmitic acid and polyethylene glycol 1000.

A vinegar douche is used 12 to 15 hours after initial drying and insufflation, and each morning after bedtime suppository medication. Diagnostic smears and symptomatic improvement indicate that this form of therapy is frequently effective. However, only a few controlled comparisons with placebo medication have been made and the observations so far do not permit evalution of the effect of furazolidone alone as compared to simple drying of the vagina by exposure to air, the use of acid or plain water douches, or the introduction of the sugars, lactose, and/or dextrose. The mechanical effect of concomitant douching and the addition of known effective agents interfere with the evaluation of any proposed new chemical form of treatment.

Furazolidone has been shown to have low systemic toxicity in experimental animals; however, nitrofuran derivatives sometimes cause skin sensitization after repeated application. So far intravaginal use of furazolidone has not been associated with untoward effects except for the rare occurrence of vulvar edema and pruritus after vaginal insufflation. Further experience is required to determine its potentiality for sensitization of the vaginal mucosa.

Dosage.—Furazolidone is proposed for vaginal insufflation as a 0.1% powder or for vaginal application as a 0.25% suppository. Each insufflation requires 5 gm. of the powder, which is administered two or three times weekly in conjunction with one suppository twice daily for one week and then once daily throughout a complete menstrual cycle including the period of menstrual flow. However, it is not yet possible to estimate the effective dosage of furazolidone alone because it has been employed only in conjunction with other antitrichomonal agents.

Eaton Laboratories cooperated by furnishing scientific data to aid in the evaluation of furazolidone.

Radio-Iodinated (I^{131}) Serum Albumin (Human).—Radio-iodinated (I^{131}) serum albumin (human) is a stable preparation derived from the radioactive isotope, radioiodine (I^{131}), made by mild iodination of normal human serum albumin so that not more than one atom of iodine is introduced per 60,000 molecular weight of albumin. The radioactive component (I^{131}) emits negative beta particles and gamma radiation. The half-life of I^{131} is 8 days.

Actions and Uses.—Radio-iodinated (I^{131}) serum albumin (human) does not significantly differ in physical and chemical properties from the original protein, and when injected intravenously there is no transfer of radioactivity to other blood proteins. Thus the albumin behaves in the body like the normal plasma constituent. As supplied for injection in appropriately buffered isotonic sodium chloride solution, the preparation is adjusted to provide 0.3 to 1 mc. (millicurie) of radioactivity in approximately 10 mg. of human serum albumin per cubic centimeter and to reduce unbound I^{131} to less than 2%. Since there may be a very slow liberation of iodide in such solution, it should be stored at 2 to 10 C and used within 4 weeks from the date of preparation.

After intravenous administration, complete mixing with the circulating blood occurs within 10 minutes. About 90% of the administered dose remains in the plasma at the end of one hour, and equilibrium between the blood and lymphatic systems is complete within 7 to 13 hours. It may appear in the spinal fluid 5 days after intravenous injection. During the first day after administration, 5 to 15% of the radioactivity is excreted in the urine (mostly as sodium radioiodide) and about 5% is taken up by the thyroid; this apparently represents free radioiodine liberated by metabolic processes. It is estimated that 25 to 50% is eliminated during the first week. The urine is the chief route of elimination of radioiodine; the liver does not participate in its excretion. Metabolic studies reveal that detectable amounts remain in the blood and lymph up to 6 days, but smaller amounts may remain for several weeks.

Radio-iodinated (I^{131}) serum albumin (human) is useful as a diagnostic aid for tracer studies in the determination of blood or plasma volumes, circulation times, or cardiac output, and as an adjunct to other diagnostic procedures in the detection and localization of brain tumors. Its use for determination of circulatory volume and time or for the measurement of cardiac output is based upon the principle of dilution of tagged albumin in the normal albumin pools of the body. In the determination of blood or plasma volumes, the preparation is diluted with normal saline solution to a concentration of 2.5 to 3 μc (microcuries) per cubic centimeter, and an aliquot of this solution is removed for use as a standard. The desired dose then is injected into the antecubital vein and samples of blood, immediately heparinized after withdrawal, are taken from the opposite arm 10 to 30 minutes later. Diluted to standard volume, radioactivity of the blood is estimated with a suitable gamma ray-sensitive counter and calculated against that of the standard. When plasma volume is desired, the blood sample is centrifuged before dilution and the supernatant plasma counted after separation and thorough mixing. A technique for counting dried samples also may be employed for determination of either blood or plasma volumes. When repeated determinations are carried out on the same patient, it is necessary to measure the base-line residual radioactivity before injecting a new dose of the tagged albumin; this is subtracted from the activity of subsequent samples before the final calculation is made. The use of radioiodine for blood or plasma volume determinations does not interfere with the simultaneous employment of a pure beta ray-emitting radioisotope for tagging red blood cells in the determination of red cell volume. In the determination of blood circulation times, radioiodinated serum albumin (human) injected peripherally is used in conjunction with a scintillation counter and appropriate electronic recording device. The elapsed circulation time for various pathways (arm to arm or leg, arm to heart, heart to arm) may be obtained by proper placement of the counter at the desired endpoints. Separate counters also may be placed so as to obtain the elapsed time over consecutive segments of the same vascular pathway. Cardiac output also can be measured with radioiodine, using a special technique involving an instrumentation system for continuous recording of radioactivity.

Subject to the dosage limits indicated in the dosage statement, the use of radio-iodinated (I^{131}) serum albumin (human) as a tracer substance involves minimal radiological hazard because of the small amount of activity ordinarily required for repeated studies of blood volume, circulation time, or cardiac output, and the infrequent use of the larger amount that is required for the detection and localization of brain tumors. In view of the gradual metabolic release in the body of small amounts of radioiodine that may be taken up by the thyroid, however, it is advisable to block uptake of radioisotopic iodine and possible damage of the gland by the prior oral administration of strong iodine solution (Lugol's solution). Because of prolonged retention of injected serum albumin in the blood, the possibility should be borne in mind of radioactive contamination of hospital equipment used for subsequent bleeding or surgical procedures performed within the first few weeks after the prior administration of radioiodine. Although some evidence is available to indicate that the immunologic nature of human serum albumin is not altered by iodination with radioiodine, physicians also should be alert to the possibility of allergic reaction in patients receiving subsequent doses several weeks after an initial dose.

Dosage.—Radio-iodinated (I^{131}) serum albumin (human) is administered intravenously. The volume to be injected is determined on the basis of the dilution required to provide the desired radioactive dose from an isotonic sodium chloride solution with an assayed activity between 0.3 and 1 mc. per cubic centimeter. The stated radioactivity assay of solutions at the time of shipment should be corrected for decay prior to administration, in accordance with a table of conversion factors based on the half-life of radioiodine.

For the determination of blood and plasma volumes, the dose ranges from 3 to 60 μc depending on the radiosensitivity of the counting equipment used. For the determination of blood circulation times, the dose ranges between 5 and 60 μc per pathway measured, depending on its vascular length and the sensitivity of the recording apparatus. Similar doses may be adequate for the determination of cardiac output. The dose should be kept as small as possible and should not exceed 200 μc in any one week. Approximately 2.7 μc per kilogram of body weight integrated over a one week period will deliver 0.3 r, which is the tolerance for one week. A single dose of 200 μc can be given at one time, if no more is used for at least one week.

As an adjunct in the detection and localization of brain tumors, a dose of 5 μc per kilogram of body weight may be sufficient when counting is done with scintillation counters or bismuth cathode Geiger-Muller tubes; if counting is to be done with the conventional Geiger-Muller tube, a somewhat higher dose may be desirable, but this should not exceed 500 μc (7 μc per kilogram of body weight in a patient weighing 70 kg.). After intravenous administration of the appropriate dose, a period of 20 to 24 hours is allowed to elapse before systematic scanning of the skull is begun. Serial counts may be made to verify initial counts up to 40 to 48 hours. If a repeat localization study is indicated, a second dose should not be administered sooner than 30 days after the first dose.

Abbott Laboratories cooperated by furnishing scientific data to aid in the evaluation of radio-iodinated (I^{131}) serum albumin (human).

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FIFTIETH ANNIVERSARY OF THE COUNCIL ON PHARMACY AND CHEMISTRY

This year marks the 50th anniversary of the Council on Pharmacy and Chemistry. The Council is a standing committee of the Board of Trustees of the American Medical Association, created and organized in 1905 as an advisory body to provide authoritative and unbiased information on drugs. Since its inception, the Council has endeavored to fulfill this function through the dissemination of information designed to encourage rational therapeutics. In the half-century since its establishment, the Council has met the challenge of changing conditions and has sought to keep abreast of the advancement of knowledge in the field of drug therapy. Earlier in this anniversary year, a new program of operation designed to render a better service to the medical profession was instituted.[1] The occasion is thus particularly appropriate to highlight the services and expanded activities of the Council.

The Council's best known book publication, New and Nonofficial Remedies, revised annually since 1907, provides descriptions of the actions, uses, and dosage of new drugs and has achieved the status of a scientific reference on this subject. Monographs on new drugs, regularly submitted to the Editor of The Journal for publication in a special column, provide up-to-date information for subscribers of The Journal and serve to supplement annual editions of the book. The Council issues a companion book publication, the Epitome of the Pharmacopeia of the United States and the National Formulary, which summarizes the recognized uses of older established medicinal substances and which also has been revised periodically to reflect changes in these official publications. The publication of Useful Drugs was discontinued after the appearance of the 15th edition in 1952, because of the limited demand for a book that described a selected list of drugs from the two foregoing publications. The Council has also sponsored the publication of "Glandular Physiology and Therapy" and "Fundamentals of Anesthesia." Revised editions of these books were published in 1954.

To meet a need for encouraging coordinated and improved methods in the clinical investigation of drugs, a standing committee of the Council, designated the Therapeutic Trials Committee, was established in 1945 and renamed the Committee on Research in 1950 in order to broaden the base of its activity. The Committee has sponsored a large-scale coordinated clinical trial of steroids in management of mammary cancer. Reports have been published on the results of such studies, as well as on the criteria for clinical testing of certain other classes of drugs and proposed methods for investigating the efficacy of therapy in certain diseases. This Committee also is currently active in developing procedures for centralizing information concerning unsuspected adverse reactions to drugs.

In 1950 the Council established a standing Committee on Pesticides to obtain, analyze, and disseminate information on the hazards of pesticidal chemicals and methods for avoiding or combating toxic exposure to such agents. A third standing committee of the Council, the Committee on Toxicology, organized at the beginning of this anniversary year, is investigating the problem of accidental poisoning from ordinary household medicines and chemicals.

Commemoration of the Council's 50th year would be incomplete without a tribute to the individual members of the Council, its standing committees, and numerous consultants, without whose unstinting and unremunerated assistance the broad program of the Council could not be implemented. The support and comment of the rank and file of A. M. A. members also have been important to the Council in gauging the kind and amount of information on drugs that is needed in meeting the everyday problems of physicians. It is especially fitting to give individual recognition to a charter member of the Council who has served continuously in a most active capacity since its first meeting on February 11, 1905, and as its Chairman since 1936: Torald Sollmann, M.D., D.Sc., professor emeritus of pharmacology and materia medica, Western Reserve University School of Medicine. *His foresight, leadership, and guidance have made possible many of the achievements of the Council and exemplify the unselfish devotion implicit in its motto: Non sibi sed medicinae.*

REPORT ON MEDICAL PREPAYMENT PLANS

In this issue of The Journal (page 1370) is a progress report from the Commission on Medical Care Plans. It was presented to the House of Delegates of the American Medical Association, and the action of the House will be reported in the abstracted proceedings that will be published in the next several issues of The Journal. The report is printed almost in its entirety in this issue; all that is missing is an exhibit on the questionnaire to be sent to miscellaneous and unclassified plans and a map of the Blue Shield and Medical Society and related plans in the United States. This latter material has been summarized in the text. This is an informative and significant report.

The Commission was appointed by the Board of Trustees in November, 1954. Consisting of 15 members, it has as Chairman Dr. Leonard W. Larson. The survey in process by the Commission includes medical, lay-sponsored, and industry plans and provides information on idemnity insurance plans, prepaid free choice service or full payment plans, prepaid combination indemnity-service plans, prepaid closed-panel plans, noncontributory closed-panel plans, and noncontributory free choice plans. The plans are being studied to permit determination of the history and development of each, the relationship between the plan and the physician, the relationship between the plan and the patient, the extent of coverage of each throughout the United States, and other pertinent data.

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[1] New Program of Operation for Evaluation of Drugs, report of the Council on Pharmacy and Chemistry, J. A. M. A. **158**: 1170-1171 (July 30) 1955.

The growth of voluntary medical care plans in the United States has been phenomenal, and the American Medical Association has endorsed the principle of these plans as a means by which people may cover all or part of their professional costs of illness and or disability. This development is said to raise several searching questions for the medical profession; for example: What effect, if any, do these plans have on patient-physician relationship? Are there plans in which a participating physician violates the principles of medical ethics? Will the plans encourage the corporate practice of medicine?

There are many facets to the study to be explored by the Commission, but, briefly presented, the objectives of the study can be stated as the determination of the nature and methods of operation of the various types of plans through which persons receive the services of physicians, the effect of these plans on the quality and quantity of medical care provided, and the legal and ethical status of the arrangements used by the various plans. Four committees consisting of members of the Commission have been appointed to consider the different areas of study. The results of the studies so far conducted are evident in the Commissioner's report in this issue of THE JOURNAL. It represents a vast amount of work and, as a progress report, is an invaluable source of information. It serves well as a guide for the studies remaining to be done.

WHERE EXPECTED LONGEVITY IS GREATEST

Often the opinion is heard that the healthiest people in the United States live in heavily populated areas where hospitals, physicians, and other health facilities and personnel are plentiful. Recently published data on the expectation of life, particularly at birth, in each of the 48 states for 1949-1951 refute this popular notion, especially for white males.[1] The statistical department of the Metropolitan Life Insurance Company has assisted the National Office of Vital Statistics of the Department of Health, Education, and Welfare in the preparation of life tables for each state. All the tables, including those for nonwhite males and females, will be published soon by the National Office of Vital Statistics.

The six states with the highest expectation of life at birth for white males for 1949-1951 were: South Dakota, 68.4 years; Nebraska, Minnesota, and Iowa, 68.2 years; Kansas, 68.0 years; and North Dakota, 67.9 years. The expectation of life at birth for white males in the United States was 66.3 years. In 1939-1941 the six leading states for white males were Nebraska, South Dakota, Minnesota, Iowa, North Dakota, and Kansas. Thus it is obvious that white males of these sparsely settled states still enjoy comparatively low mortality. The only changes apparent in the figures cited above are (1) South Dakota has replaced Nebraska as the leader, and (2) Kansas and North Dakota have exchanged ranks.

It is not possible to say that longevity will actually be greatest among the white males of these six states, because expectation of life is an actuarial computation based upon the mortality rates at all ages in three specified calendar years. This computation, strictly speaking, is not a forecast of the mortality that will prevail during the entire lifetimes of the babies born in each of these six states in the specified three calendar years. These favorable mortality records among white males in these six states must be attributed, in part, to the strong North European strains in the population and favorable selection factors in migration. The number of miles that many people in these states must travel to visit a physician or become a patient in a hospital might be considered a health hazard by many urban dwellers, but the people in the West North Central region of the United States have developed a way of life that makes them well adjusted to these spatial conditions.

Nebraska retained its leadership in life expectation at birth for white females with 74.0 years as compared with 72.0 years for the entire United States. Oklahoma, Florida, Iowa, Kansas, and South Dakota follow with 73.8 to 73.6 years. A more general observation is that the state variations in longevity as indicated by expectation of life at birth were less in 1949-1951 than they were in 1939-1941. The leaders in expectation of life at age 25 were South Dakota, Nebraska, and Iowa, with 46.8 years for white males. The leading states for white females at age 25 were Oklahoma, Nebraska, Florida, Arkansas, Kansas, Iowa, Texas, South Dakota, and Utah, ranging from 51.8 years to 51.1 years. The states in which the people at age 65 had the greatest expectation of life were Arkansas, Florida, and Oklahoma for white males and Florida, Arizona, Arkansas, Oklahoma, and Texas for white females.

The variations in expectation of life in 1949-1951 at these three selected ages were less marked, of course, among the nine regions than among the 48 states. The West North Central region (Minnesota, North Dakota, South Dakota, Iowa, Nebraska, Missouri, and Kansas) had the highest expectation of life for white males at birth (67.8 years) and at age 25 (46.4 years), but the West South Central region ranked first at age 65 (13.4 years versus 13.3 years). For white females the West North Central region had the highest expectation of life at birth, 73.3 years; at age 25 its 50.9 years ranked it second to the West South Central region with 51.2 years; at age 65, however, it was outranked by a small margin by the West South Central, Mountain, and Pacific regions. In 1939-1941, the West North Central region ranked first in expectation of life at birth, at age 25, and at age 65 for white males; and first at birth, first at age 25, and tied for second at age 65 for white females. These data for the nine regions, as well as those for the individual states, should remove all doubt about where the expectation of life is and has been the highest, particularly at birth and at age 25.

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[1] State Variations in Longevity, Metropolitan Life Insurance Company Statistical Bulletin, Oct., 1955.

ORGANIZATION SECTION

REPORT TO THE HOUSE OF DELEGATES

SUPPLEMENTARY REPORT OF BOARD OF TRUSTEES: PROGRESS REPORT OF COMMISSION ON MEDICAL CARE PLANS

BACKGROUND

In order to more fully appreciate the reasons for the appointment of the Commission on Medical Care Plans and to establish a framework of reference for its activities, it may be helpful to underscore briefly the conditions that have given rise to its formation.

The social and economic changes of the past two decades brought about by a depression and two wars have involved every institution and organization in community life. It is important to understand why and how these changes have occurred and how they have influenced the thinking of the citizens of our country. It is important to recognize why the medical profession has, and must continue, to assume a continuing and aggressive leadership in all developments which affect its interests and those of the people it serves. For, unless it is able to provide the guidance and the stimulus for continued improvement in the quality and quantity of medical care for the American people, it will find its voice drowned out by the violence of a force that feeds on expediency or actual existing needs. The issue of quality and quantity of medical care has emerged from our experiences over the past 20 years as one of the major popular issues of our time. The passage of events has also witnessed the growth of voluntary medical benefit programs on a scale which could not have been foreseen.

OBJECTIVES

In the interests of public health, the American Medical Association has encouraged the development of voluntary prepayment plans while attempting to uphold the standards of the profession and to protect the public from unsound plans. However, many programs have grown at such a pace and created questions and problems involving physician-patient relationships and the Principles of Medical Ethics which require study and reappraisal. The American Medical Association is now confronted with a number of basic questions of great concern to the profession. The objectives of the Commission, therefore, are to inquire into (1) the nature and methods of operation of the various types of plans through which persons receive the services of physicians; (2) the effect of these plans on the quality and quantity of medical care provided; and (3) the legal and ethical status of the arrangements used by the various plans, including (*a*) What effect, if any, do these plans have on the traditional patient-physician relationship? (*b*) Does the introduction of a third party in this relationship tend to disturb it and result in an inferior quality of medical care? (*c*) Are there plans in which the participating physician is violating the Principles of Medical Ethics? (*d*) Will the plans encourage the corporate practice of medicine, especially by hospitals? (*e*) What is the proper relationship, if any, between the medical profession and all these third party financial mechanisms?

FORMATION OF COMMISSION

On Nov. 29, 1954, the Board of Trustees approved the formation of the Commission on Medical Care Plans. The 15-member Commission [*] subsequently appointed by the Board was directed to undertake a study for the purpose of determining whether the various types of medical care plans are being utilized to their greatest degree in promoting the availability of health services and whether, at the same time, they are being so conducted as to protect the public and the proper interests of the medical profession. The formulation of the Commission's objectives was contained in a study outline approved by the Board of Trustees in December, 1954, and adopted by the Commission at its first meeting on Feb. 3, 1955. It contained three basic purposes of the Commission's study that have served, and will continue, to guide it in its deliberations.

CURRENT ACTIVITY

The Commission has met on two occasions since its appointment to consider the many problems assigned to it. It has delineated the areas of study through which it hopes to be able to arrive at recommendations and suggested courses of action. The staff of the Commission has been instructed to carry out a number of specific assignments. These include a directory of medical care plans, a compilation of policy statements of the American Medical Association, as well as the decisions and opinions of the Judicial Council, and other material and data covering the specific areas discussed in the following material. The staff has already begun several research projects, the results of which will assist the Commission in its determinations, and it has projected further activity based upon the outcome of its current research efforts. Nine groups of materials have been assembled for study and apportioned among four committees comprised of members of the Commission. This procedure will enable the Commission to benefit from the advice and experience of all its members, and thereby proceed at a faster pace in carrying out its responsibilities. The following is a listing of the committees of the Commission and the areas of study assigned to them.

Areas of Study Under Consideration	Committees
Miscellaneous and unclassified plans Student health services	H. Russell Brown, M.D., Chairman John S. Conway, M.D. F. J. Elias, M.D. Leo Price, M.D.
Medical society and related plans including Blue Shield Private insurance programs	Percy E. Hopkins, M.D., Chairman E. J. Faulkner Jay Ketchum Norman A. Welch, M.D.
Industry programs providing non-occupational medical care Occupational disability programs —workmen's compensation	William P. Shepard, M.D., Chairman David B. Allman, M.D. H. Gordon MacLean, M.D.
Policy statements of the House of Delegates Judicial Council decisions relative to pertinent sections of Principles of Medical Ethics Enabling acts and court decisions	Homer L. Pearson, M.D., Chairman Joseph D. McCarthy, M.D. James R. Reuling, M.D.

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[*] Leonard W. Larson, M.D., Chairman, David B. Allman, M.D., H. Russell Brown, M.D., John F. Conway, M.D., F. J. Elias, M.D., E. J. Faulkner; Percy E. Hopkins, M.D., Jay Ketchum, Joseph D. McCarthy, M.D., H. Gordon MacLean, M.D., Homer L. Pearson, M.D., Leo Price, M.D., James R. Reuling, M.D., William P. Shepard, M.D., and Norman A. Welch, M.D.

Miscellaneous and Unclassified Plans.—Miscellaneous and unclassified plans constitute one of the important areas of study. They represent that group, other than Blue Shield, other than medical society approved, and other than private insurance plans, that provide payment for physicians' services in a hospital, home, office, or clinic. This group of plans, estimated to number between 250 and 300 throughout the country, is of immediate and particular interest. A recent study by the Department of Health, Education, and Welfare summarizes enrollment data and other characteristics of such plans. However, the Commission found that the above study included a substantial number of plans which should be otherwise classified, and therefore has been conducting a thorough search among various sources, including the literature, in order to prepare a complete and definitive directory of this group of plans. A classification code to identify each of the plans by its outstanding characteristics has been developed and is being employed to process the data as it is received. To date, basic information on 212 miscellaneous plans has been secured through the use of questionnaires, and brief descriptions of these plans have been compiled. Table 1 is a census region breakdown by type of plan and enrollment of 206 plans. An analysis has been made based upon 206 of the 212 that supplied enrollment data. About 100 organizations have not as yet returned the Commission's questionnaire, but it is estimated that no more than 50 might eventually be eligible for inclusion in the study. Enrollment information available for the 206 plans reveals that 4,954,344 persons were eligible to receive benefits for physicians' services either in the hospital, office, home, clinic, or a combination of these facilities. The enrollment figure is actually an understatement, since 12 plans with a membership of 314,438 were unable to supply information on the number of dependents covered at the time the questionnaire was completed. It is reasonable to assume, therefore, that the total enrollment of the 206 plans is over 5 million. The census region breakdown as seen in table 1 shows that:

1. Sixty-four plans, or about 32 per cent, of the 206 with known enrollment, with an enrollment of 1,178,295 are either cash indemnity, service (full payment), or a combination of both; 46 plans, or 72 per cent, of this group are indemnity plans. Enrollment in these plans constitutes more than one-eighth (13.6%) of the enrollment in all plans.
2. One hundred twenty-eight plans, or 62 per cent, of the 206 with known enrollment, with an enrollment of 2,386,769, are closed panel plans either open to the general public or limited to a specific industry, union, etc. Enrollment in these plans constitutes a little less than half (48%) of the enrollment in all plans.
3. Fourteen plans, or almost 7 per cent, of the 206 with known enrollment, with an enrollment of 1,389,280 are a combination of cash indemnity/full payment and closed panel plans. Enrollment in these plans constitutes over one-quarter (28%) of the enrollment in all plans.

A breakdown of the 212 plans (table 2) reveals that the largest number of plans are those jointly sponsored by employer-employee. They represent 28% of all types of plans and 15% of all enrollment. However, union-sponsored plans, which represent only 17.5% of all plans, have the greatest enrollment—more than one-third (36%) of all those enrolled in these miscellaneous plans. More than half (58%) or 123 of the 212 plans provide some type of coverage for dependents. Consumer plans rank first, followed by employer-employee and employee plans.

Physicians' services in a hospital are provided by the largest number of plans; 81% of the plans offer this benefit; 64% of the plans provide these services in a doctor's office; 62% offer this benefit in a clinic and in the member's home (table 3).

Table 4 is a breakdown of the 206 plans with known enrollment. The largest number of plans (38) are equally divided in the 2,500-4,999 and the 5,000-9,999 groups; however, the largest enrollment is in the 100,000-499,999 group, and slightly over 3% of all plans (7 in number) account for more than half (52%) of the known enrollment.

Concurrent with the compilation of a directory, the Commission has in process a detailed study schedule which will be sent to all the plans requesting more complete information on their operations, organization, financing, medical service arrangements, facilities, benefits, personnel, policy, and other items. This information will be recorded on IBM and detailed analyses made for further study and evaluation before conclusions are reached and recommendations made to the Board.

Student Health Services.—Student health services consist of arrangements made by colleges and universities to provide for medical service to students. Within the past five years two studies have been made, one by the American Medical Association Bureau of Medical Economic Research, and one by Cornell University, which provide the Commission with what may be sufficiently current information to evaluate the extent and scope of these services. The findings of these surveys will be studied as the Commission proceeds with its work, and recommendations made to the Board. It was the consensus that, although these plans fall within the scope of the Commission's study and merit consideration, the other indicated areas of study are of more immediate interest and of continuing concern. Further activity in this area may be indicated after sufficient progress has been made in the study of other types of plans.

Medical Society and Related Plans Including Blue Shield.—Medical society and related plans number 116 and include an enrollment of approximately 34 million people for surgical benefits and 25 million for regular medical benefits, as of Dec. 31, 1954. Summary descriptions of 86 plans that describe the 116 plans have been prepared and classified. They will serve as the basis of a detailed study which will summarize various characteristics, such as type of plan, benefit schedules, eligibility requirements, premiums, and other contract provisions.

The Blue Shield Commission has made a detailed study of many of the characteristics envisioned in the Commission study, and its cooperation has been requested in supplying the Commission with the summary data it has compiled. It is contemplated that a similar analysis will be made by the Commission with respect to medical society plans other than Blue Shield. This task should be simplified after Blue Shield data has been secured from the Blue Shield Commission, so that a more uniform basis of comparison can be attempted. Upon the completion of this research project, the members of the Commission may be in a better position to offer recommendations.

There are 30 plans in 23 states with an enrollment of more than 10 million in cash indemnity plans; 27 plans in 4 states with an enrollment of over 750,000 in full payment or service plans; and 59 plans in 35 states with an enrollment of 22,750,000 in a combination of indemnity and full payment plans. Included at this time in the 116 plans are 9 plans which are not approved by any medical organization but which are affiliated with, or are extensions of, local hospital benefit plans.

Private Insurance Programs.—Private insurance programs covered approximately 53 million persons for surgical expense, almost 21 million people for regular medical expense, and some 2,250,000 for major medical expense benefits by the end of 1954. Private carriers include such organizations as capital stock, legal reserve mutual, assessment mutual, cooperative assessment insurance companies, as well as fraternal societies. Before initiating its study of the characteristics of these programs, the Commission is presently attempting to prepare a directory of all private insuring organizations in the United States that may have appropriate charter power to assume these risks. The Commission's compilation to date indicates that upwards of 1,400 insurers have such charter power; however, the number of companies actually writing these benefits may be nearer to 500. A recent compilation by a trade magazine reported the premium and loss data for 430 companies relating to such risks as hospital, surgical, and/or medical expense. The same publication identified some 95 additional companies as engaged in writing medical benefit insurance but which did not report separate premium or loss data.

TABLE 1.—*Distribution of Types of Medical Care*

Code	Type of Plan	New England		Middle Atlantic		East North Central	
		No.	Enrollment	No.	Enrollment	No.	Enrollment
A	Indemnity	4	18,273	13	118,076 (12)	13	370,780
B	Prepaid, free choice, service or full payment	..	......	3	23,259	1	50,752
C	Combination of cash indemnity and service or full payment	..	......	3	319,427	4	45,236
D-1	Closed panel; open to general public	..	......	1	434,758	3	2,011 (2)
D-2	Closed panel; limited to specific industry, union, etc.	4	19,557	23	386,287 (22)	11	189,162
A & D-1	Combination	..	......	..	....	1	444
A & D-2	Combination	..	......	4	263,190	3	44,046
B & D-2	Combination	..	......	2	38,200	..	....
C & D-2	Combination	..	......	2	18,400	..	....
	Total	8	37,830	51	1,601,597 (49)	36	702,431 (35)

* Analysis based upon 206 out of 212 miscellaneous and unclassified plans providing enrollment data.

In an effort to identify all companies licensed to write various forms of health insurance, the Commission has contacted all insurance regulatory authorities throughout the country as well as the Federal Trade Commission. In addition, representatives of the Health Insurance Council have been requested to supply the Commission with data on private insurance similar to the Blue Shield data compiled by the Blue Shield Commission. The availability of such material will determine the extent of the Commission's ability to evaluate this group of plans and thus provide a sound basis for any appropriate recommendations for the consideration of the Board of Trustees.

Industry Programs Providing Nonoccupational Medical Care.—Industry programs providing nonoccupational medical care have significant import in the total picture. The number of companies providing nonoccupational health services to employees, the volume and scope of medical services offered, and the number of personnel concerned represent many unknown quantities in medical care for workers in industry throughout the country. Both inplant and outplant medical programs, however, are known to range from those which provide only preplacement examinations and first aid for minor illness and injuries to those with rather comprehensive programs for nonoccupational and occupational medical care.

It is important to note that the emphasis on preventive health programs in industry which are paid for and maintained by industry is an outgrowth of workmen's compensation programs in which financial liability for occupational illness and injury was imposed upon the employer. The increasing recognition on the part of management of the need to keep the employee on the job, to reduce absenteeism due to nonoccupational causes, to reduce turnover, to educate the worker in accident prevention and personal hygiene to match the physical abilities of the applicant with the physical demands of the job—all have resulted in the expansion of what was originally conceived as a "first-aid" program into one of diagnostic and preventive care or "health maintenance," as it is popularly called today.

A further expansion of employee health maintenance is, in some instances, noted in the direction of extending health service programs to retired employees. Many of the programs that do exist, and their number is relatively small, are informal; but they reflect the interest on the part of a segment of management to assist the older worker in reducing the impact of medical costs. On a much more informal basis is the occasional rendering of such services to dependents of employees. As in the case of medical services to retirees, the extent and scope of such programs cannot be measured due to the reluctance on the part of program administrators to disclose either the existence or details of such services. However, these programs do exist. The hesitancy to publicize them stems from several causes, among them are (1) the fear that formal recognition would result in their becoming an integral part of collective bargaining, (2) the fear that such recognition might meet with opposition from within the medical profession itself, and (3) the fact that many programs are largely experimental and the actual costs have not yet been determined. Another rapidly expanding medical service among industry is that of executive health examination programs, which afford the executive an opportunity to secure periodic comprehensive diagnostic medical services.

The 1951 survey by the National Association of Manufacturers among 3,589 member companies with employment of 3,312,647 workers is the most recent study of inplant and outplant medical services now available. The total employment in the survey was more than 22 per cent of the average number of workers employed in manufacturing industries during 1950. Inplant dispensaries were reported by 1,878 companies (52.3% of the total) employing 2,897,357 persons (86.9% of the total). An additional 24 companies reported inplant programs built around company hospitals. The likelihood that an inplant dispensary was available increased as the company size increased. Among the larger companies (over 2,500 employees) there were almost three times as many maintaining dispensaries than were reported by the small companies (1-250 employees) (table 5).

TABLE 4.—*Two Hundred Six Miscellaneous and Unclassified Plans by Size of Enrollment*

Enrollment	No. of Plans	Percentage Distribution	Enrollment	Percentage Distribution
Less than 500	19	9.2	5,932	0.1
500- 999	16	7.7	12,178	0.2
1,000- 2,499	24	11.7	39,282	0.8
2,500- 4,999	38	18.4	133,683	2.7
5,000- 9,999	38	18.4	271,964	5.5
10,000- 24,999	33	16.2	481,828	9.7
25,000- 49,999	19	9.2	649,781	13.1
50,000- 99,999	12	5.8	785,207	15.9
100,000-499,999	6	2.9	1,574,489	31.8
500,000-999,999	..	...	....	...
1 million or more	1	0.5	1,000,000	20.2
Total	206	100.0	4,954,344	100.0

*Plans and Enrollment, by Census Region**

West North Central		South Atlantic		East South Central		West South Central		Mountain		Pacific		All Regions	
No.	Enrollment	No.	Enrollment	No.	Enrollment	No.	Enrollment	No.	Enrollment	No.	Enrollment	No.	Enrollment
5	47,553	5	85,474	2	21,418	1	600	..	.....	4	9,616	47	671,790 (46)
..	......	1	7,426	..	......	1	825	..	.....	4	56,432	10	138,694
..	......	1	3,148	..	......	..	...	..	.....	..	.....	8	367,811
5	11,072	2	20,259	1	25,000	7	21,064	2	1,503	12	614,476 (10)	33	1,130,143 (30)
12	189,068	10	96,406	5	79,853	12	59,746 (11)	6	94,184	15	142,363	100	1,256,626 (98)
..	......	..	......	..	......	..	...	..	.....	..	.....	1	441
..	......	1	1,000,000	..	......	..	...	..	.....	1	25,000	9	1,332,236
..	......	..	......	..	......	..	...	..	.....	..	.....	2	38,200
..	......	..	......	..	......	..	...	..	.....	..	.....	2	18,400
22	247,693	20	1,212,713	8	126,271	21	82,235 (20)	10	95,687	36	847,887 (34)	212	4,954,344 (206)

TABLE 2.—*Two Hundred Twelve Miscellaneous Unclassified Plans by Type of Sponsorship*

Sponsorship	Plans	Percentage Distribution	Enrollment*	Percentage Distribution	No. of Plans Covering Dependents
Employer	13	6.1	171,508 (12)	3.5	9
Employee	45	21.2	700,502	14.2	21
Employer-Employee	60	28.3	740,867 (59)	15.0	24
Union	37	17.5	1,769,653 (36)	35.7	15
Private Group Practice	13	6.1	569,962 (10)	11.5	13
Consumer	40	18.9	895,071	18.0	37
Other	4	1.9	106,781	2.1	4
Total	212	100.0	4,954,344 (206)	100.0	123

* Based upon 206 plans providing information.

TABLE 3.—*Types of Physicians' Services Provided in 212 Miscellaneous and Unclassified Plans*

Sponsorship	No. of Plans	No. of Plans Providing Physicians' Services in			
		Hospital	Office	Home	Clinic
Employer	13	12	6	5	6
Employee	45	43	33	29	18
Employer-Employee	60	50	45	43	41
Union	37	19	16	13	27
Private Group Practice	13	11	11	11	11
Consumer	40	33	25	26	28
Other	4	4	1	..	2
Total	212	172	136	127	133

Preemployment examinations, physical examinations upon return to work from sickness or accident, periodic examinations, health counseling, visual, dental, hearing tests, and home visitation programs were among the services most frequently provided. In addition, but no less important, was the on-the-job treatment for minor illnesses to enable the employee to remain on the job. There was also substantial participation in community health programs such as chest x-ray. Other community programs deal with the problems relating to syphilis, cancer, Rh, and to a lesser extent, multiple screening.

More than 5,000 physicians, about 3,400 nurses, and a large number of first-aid attendants were used in the inplant programs covered by the survey. Over half the companies used physicians employed full time, part time, or on a call basis. Table 6 shows companies reporting the number of physicians of each type, and the employees covered.

Since the characteristics of inplant health programs are of interest to the Commission, and since such programs are an integral part of its study, it would be extremely helpful if the total picture of facilities, personnel, types of services rendered, and physician relationships could be determined. Such a study would require an undertaking of major proportions, however. A questionnaire has therefore been sent to the total membership (3,100) of the Industrial Medical Association asking medical directors to supply the Commission with information concerning medical programs for nonoccupational illness. The same questionnaire is also being used to elicit information on workmen's compensation programs.

TABLE 5.—*Companies with Inplant Facilities, Distribution by Size*

Size Group	Percentage with Dispensaries
All companies	52.3
1- 250	30.7
251- 500	67.1
501-1,000	81.3
1,001-2,500	87.0
Over 2,500	89.1

TABLE 6.—*Physicians in Inplant Programs*

Employment of Physician	No. of Companies	No. of Physicians	No. of Employees
Full time	172	462	1,496,677
Part time	613	1,186	2,038,623
Call basis	1,725	3,367	1,521,384

The Commission also has available to it for study 10 detailed case studies. Hitherto unpublished, these studies of company medical programs contain a variety of examples not only of types of medical programs and scope of services, but, more important, of the relationships that exist between industrial physicians and general practitioners in the community. These are of particular interest in that they contain elements of professional and physician-patient relationships that may require clarification. This material, together with the results of our special survey, will enable the Commission to examine more fully the problem areas in this field of study and to arrive at possible recommendations. An observation worth noting at this time is that the successful operation of many of these programs served as guides for the establishment of so-called union health centers. The Commission is studying union health centers under Miscellaneous and Unclassified Plans.

Occupational Disability Programs—Workmen's Compensation.—The administratioin of medical and rehabilitation aspects of workmen's compensation has probably been more sharply criticized both within and without the medical profession than any other aspect of the program. With a few notable exceptions the medical profession has not concerned itself with workmen's compensation medical practices, despite the size and implications of the program. It is estimated that 21% of all accidental injuries in the United States are occupational. Disabling work injuries result annually in 16,000 fatalities, 91,000 permanent disabilities (of which 1,600 are "total"), and almost 2 million temporary disabilties.

Medical care plans for occupational disability include such things as professional services and hospitalization, and are available to an estimated 39 million employees in 54 workmen's compensation jurisdictions. In 1953 medical care for accidental injuries was unlimited in 36 jurisdictions. In the remaining 18, medical care was limited in time and/or amount. Time limitations ranged from 90 days in Alabama to two years in Michigan. Limitations in costs ranged from $225 in Pennsylvania to $2,500 in Kentucky, with the majority falling below $1,000. In general, medical care plans for occupational diseases in the 50 jurisdictions in which they were covered were limited either to specified diseases and/or time or amount. Artificial appliances were furnished in 49 jurisdictions although 9 limited this by including these costs in the total amount allowed for medical care. Medical costs usually represent 30% of total losses or 19% of the total amount expended by employers to insure or self insure their risks (1952 estimated medical costs—260 million dollars).

The major issues today are: 1. Choice of Physician. In all but a handful of jurisdictions this right is vested in employers and strictly exercised. Since the majority of employers are insured with private carriers, this right is usually transferred to them. The bulk of workmen's compensation medical practice has fallen into a few and not always the best hands. The result has been strained professional and patient relationships and the obvious inconsistency with organized medicine's policies in all other areas of medical care. 2. Supervision of Medical Treatment. Little or no supervision is provided by administrative agencies either through lack of authority or facilities. Less than half have a medical department and most not even one full-time physician. In the case of insured employers, claim adjusters have this responsibility. There are indications that the industrial relations departments of self-insurers are the dominant factors, even though professional personnel are available. By and large, supervision is in the hands of laymen, employed at levels a considerable distance from policymaking.

3. Supervision of Medical Costs. In 21 jurisdictions official fee schedules are used. These have been developed over the years by administrative agencies with participation in most instances by state medical societies. Although most agencies have the power to set fees, few do so except in disputed cases. Self-insurers and insurance carriers control costs by the simple expedient of not using physicians whose charges are out of line with what they are willing to pay, regardless of the quality or amount of the service. A study of medical losses incurred by insured employers over a 10-year period in 39 jurisdictions has been made available to the Commission for its study (tables 7, 8, and 9).

4. Medical Testimony. Aside from legitimate differences over medical theory, there is increasing use of oral testimony as opposed to acceptance of written reports because of questionable scientific basis for physicians' opinions which can be disclosed only by cross examination. Here, too, the bulk of the work is in the hands of a few, known as "employer or employee doctors." 5. Rehabilitation. Although the advantages of such a program are generally recognized, progress in the field of

workmen's compensation has been considered slow. Much of the failure has been attributed to lack of cooperation by physicians, although a number of other factors are equally, if not more so, responsible.

TABLE 7.—*Workmen's Compensation Experience of Insured Employers in Thirty-Nine Jurisdictions by Base Periods**
(Premiums Earned and Losses and Indemnity Incurred†)

					Premiums Earned		Losses Incurred				Indemnity Losses Incurred					
															Av. Case	
1‡	2	3	Jurisdiction	Base Period	Annual Av., $	Period Increase, %	Annual Av., $	Period Increase, %	Av. Ratio to P. E., %	Av. Share of P. E. $, Cents	Total Annual Av., $	Total Period Increase, %	Av. Ratio to L. I., %	Av. Share of L. I., Cents	Av., $	Increase, %
	x		Alabama	1/1/42- 1/31/52	3,937,794	57	1,984,640	106	50	50	1,257,545	82	63	31.5	200	73
			Arkansas	1/1/42- 3/31/52	5,330,484	42	2,606,240	97	49	49	1,747,491	74	67	32.8	276	69
		x	California	1/1/42-12/31/51	83,913,458	137	40,623,876	208	56	56	29,406,477	202	63	35.3	468	76
	x	x	Colorado	1/1/42- 2/29/52	3,918,798	86	2,130,883	226	54	54	1,287,379	258	60	32.4	337	114
			Connecticut	1/1/42- 7/31/52	13,635,557	164	8,190,771	140	60	60	5,303,344	150	65	39.0	420	59
			Dist. of Columbia	1/1/42- 4/30/52	3,867,552	59	1,957,301	113	51	51	1,208,273	117	62	31.7	363	117
		x	Florida	8/1/42-12/31/51	10,087,034	200	5,958,684	265	59	59	3,480,336	242	58	34.2	197	114
	x	x	Georgia	1/1/42- 3/31/52	5,783,785	113	3,237,088	211	56	56	1,904,151	208	62	34.7	223	132
			Hawaii	1/1/43- 7/31/52	1,857,913	155	747,923	120	40	40	437,801	100	59	23.6	242	21
		x	Idaho	1/1/42- 4/30/52	490,710	280	244,539	386	50	50	172,295	293	70	35.0	353	72
			Illinois	1/1/43- 6/30/52	37,479,362	105	22,423,554	126	60	60	14,876,824	124	66	39.6	392	91
			Indiana	1/1/42- 4/30/52	13,210,032	100	7,221,885	116	55	55	4,665,151	111	65	35.7	298	113
	x		Iowa	1/1/42- 7/31/52	6,284,528	191	3,248,079	239	52	52	1,807,584	287	56	29.1	247	121
	x	x	Kansas	1/1/42- 1/31/52	5,679,276	124	2,905,170	230	51	51	1,920,706	227	66	33.7	334	106
	x		Kentucky	1/1/42- 4/30/52	5,865,678	107	2,804,379	159	48	48	1,842,254	152	66	31.7	302	123
	x		Louisiana	1/1/42- 5/31/52	14,010,928	165	8,135,806	270	58	58	5,878,127	262	72	41.8	376	171
			Maine	1/1/43- 9/30/52	3,420,633	295	1,689,187	322	49	49	1,027,692	84	61	29.9	217	22
		x	Maryland	1/1/42- 6/30/52	9,236,979	78	4,949,737	201	54	54	3,450,126	207	70	37.8	313	186
x			Massachusetts	1/1/42-12/31/51	33,384,365	147	19,556,377	224	59	59	13,302,665	260	68	40.1	405	236
	x		Michigan	1/1/42- 1/31/52	29,223,996	155	13,524,480	228	46	46	8,438,160	202	62	29.5	352	93
x			Minnesota	1/1/42- 4/30/51	12,179,639	101	6,732,323	160	55	55	4,186,660	155	62	34.1	320	105
			Mississippi	1/1/49- 4/30/52	6,854,629	N. A.	3,878,954	N. A.	57	57	2,501,146	N. A.	64	36.5	316	8
			Missouri	1/1/43-10/31/52	16,198,610	123	8,850,961	127	55	55	6,273,748	116	71	39.0	297	109
	x	x	Montana	1/1/42- 3/31/52	847,881	125	432,112	161	51	51	309,049	140	72	36.7	535	44
		x	Nebraska	1/1/42- 6/30/52	3,964,049	129	2,026,761	159	51	51	1,222,320	161	60	30.6	336	62
x			New Hampshire	1/1/42- 6/30/52	2,827,482	105	1,477,954	128	52	52	936,028	111	63	32.8	224	97
			New Mexico	1/1/42- 4/30/52	2,320,958	144	1,308,036	340	56	56	893,863	378	68	38.1	454	240
x		x	New York	1/1/42-12/31/51	168,954,638	112	91,857,923	118	54	54	67,453,179	117	73	39.4	661	68
		x	North Carolina	8/1/42- 7/31/52	9,076,906	134	4,935,484	186	54	54	3,325,203	158	67	36.2	287	117
			Oklahoma	1/1/43- 5/31/52	11,493,745	103	6,091,710	217	53	53	4,496,285	218	74	39.2	536	116
x			Rhode Island	1/1/43- 7/31/52	6,052,995	93	3,724,127	81	62	62	2,552,793	70	69	42.8	411	69
		x	South Carolina	10/1/41- 9/30/51	5,321,695	123	2,843,547	77	53	53	2,103,378	60	74	39.2	256	98
	x		South Dakota	1/1/42- 5/31/52	685,746	159	315,692	148	46	46	189,626	115	60	27.6	269	81
	x		Tennessee	1/1/42- 4/30/52	7,040,803	114	3,549,656	172	50	50	2,299,839	171	65	32.5	275	128
	x		Texas	1/1/43-12/31/52	48,241,828	184	28,629,126	233	60	60	20,870,883	220	72	43.2	480	110
		x	Utah	7/1/44- 6/30/52	2,721,976	33	1,589,414	114	58	58	990,190	96	62	36.0	219	146
	x		Vermont	1/1/43- 8/31/52	1,378,303	103	774,812	133	56	56	472,976	126	61	34.2	231	98
	x		Virginia	1/1/42- 2/29/52	7,454,635	49	3,669,337	126	49	49	2,180,602	115	59	28.9	204	75
x			Wisconsin	1/1/42-12/31/51	18,983,725	94	9,905,405	134	52	52	6,500,033	140	66	34.3	264	144

* Data supplied by National Council on Compensation Insurance.

† Premiums earned: annual averages and period increases; losses and indemnity incurred: annual averages, period increases, and ratio to premiums earned and losses incurred.

‡ x in column, 1—physician may be selected by employee; 2—medical benefits limited in time and/or amount; 3—official fee schedule; blanks—physician selected by employer, unlimited medical benefits, and no official fee schedule.

Selected statutory provisions related to coverage and medical benefits under workmen's compensation have been prepared (tables 10 and 11). Additional data are needed to test the validity of some generally accepted concepts and especially to provide information not presently available on self-insurers and some aspects of rehabilitation. Some of these topics are covered in the questionnaire sent to 3,100 members of the Industrial Medical Association. It may be possible to develop the remainder by correspondence with stock and mutual carriers associations, administrative agencies and other sources.

Little is known about (1) the coordination of occupational and nonoccupational disability programs, (2) the number and conditions of employment of physicians engaged in workmen's compensation practice, (3) the number of persons receiving medical care for occupational disability under self-insurance programs, (4) the cost of medical care under self-insurance programs, (5) the number and cost of occupational disability cases rehabilitated in public and private agencies.

Two detailed studies by the Council on Industrial Health reflecting the general conditions of medical care and relations under workmen's compensation are also under consideration.

The Board of Trustees has before it certain recommendations from the Council on Industrial Health regarding the issues raised in connection with workmen's compensation. The Commission will consider as part of its study the actions of the Board of Trustees and the House of Delegates with regard to these problems.

Policy Statements of the House of Delegates, Judicial Council Decisions, Enabling Acts and Court Decisions.—The six areas of studies outlined previously encompass the broad range of medical care programs under consideration by the members of the Commission. To these must be added three other spheres of study which are more directly connected with the role of the Association and the medical profession in formulating its attitude toward medical care plans. These three areas present a historical perspective to all of the problems of medical care. They concern themselves with a study of (1) policy statements of the House of Delegates from 1926 to the present date, (2) Judicial Council decisions relative to pertinent sections of the Principles of Medical Ethics from 1847 to date, and (3) enabling acts and court decisions that have a bearing on the medical care programs under study.

A thorough analysis of the body of material in each of the foregoing categories is a necessary part of the work which the Commission is undertaking. These compilations have already been made and, based on preliminary study, have dictated the necessity for additional study that has yet to be carried on. Steps have been taken to correlate the decisions of the Judicial Council and the House of Delegates with the relevant sections of the

TABLE 8.—*Workmen's Compensation Experience of Insured Employers in Thirty-Nine Jurisdictions by Base Periods** *(Medical Losses Incurred†)*

1‡	2	3	Jurisdiction	Base Period	Total Annual Av., $	Total Period Increase, %	Av. Ratio to Losses Incurred, %	Av. Share of Premiums Earned $, Cents	All Cases		Compensable Cases		Noncompensable Cases	
									Av., $	Increase, %	Av., $	Increase, %	Av., $	Increase, %
	x		Alabama	1/1/42- 1/31/52	727,095	156	37	18.5	21	69	67	166	11	33
			Arkansas	1/1/42- 3/31/52	858,749·	153	33	16.2	34	72	99	136	12	67
		x	California	1/1/42-12/31/51	17,217,399	218	37	20.7	(49)§	(52)	(210)	(108)	(16)	(38)
	x	x	Colorado	1/1/42- 2/29/52	843,504	180	40	21.6	27	111	128	100	13	78
			Connecticut	1/1/42- 7/31/52	2,887,427	122	35	21.0	(41)	(55)	(171)	(83)	(16)	(38)
			District of Columbia	1/1/42- 4/30/52	749,028	107	38	19.3	34	87	149	121	14	70
		x	Florida	8/1/42-12/31/51	2,478,348	305	42	24.8	35	91	96	154	14	80
	x	x	Georgia	1/1/42- 3/31/52	1,242,937	216	38	21.3	24	94	83	140	12	78
			Hawaii	1/1/43- 7/31/52	310,122	156	41	16.4	(37)	(37)	(121)	(30)	(16)	(20)
		x	Idaho	1/1/42- 4/30/52	72,244	798	30	15.0	40	139	105	182	16	100
			Illinois	1/1/43- 6/30/52	7,546,730	132	34	20.4	(29)	(59)	(131)	(109)	(14)	(25)
			Indiana	1/1/42- 4/30/52	2,556,734	127	35	19.3	24	94	103	142	10	75
	x		Iowa	1/1/42- 7/31/52	1,440,495	189	44	22.9	(28)	(46)	(120)	(160)	(13)	(00)
	x	x	Kansas	1/1/42- 1/31/52	984,464	235	34	17.3	29	73	106	139	13	36
	x		Kentucky	1/1/42- 4/30/52	962,125	172	34	16.3	27	106	100	179	12	56
	x		Louisiana	1/1/42- 5/31/52	2,257,679	289	28	16.2	37	136	102	217	14	40
			Maine	1/1/43- 9/30/52	661,495	80	39	19.1	32	48	96	113	13	25
		x	Maryland	1/1/42- 6/30/52	1,499,611	188	30	16.2	29	121	86	198	13	80·
x			Massachusetts	1/1/42-12/31/51	6,163,712	166	32	18.9	N. A.	N. A.	132	194	N. A.	N. A.
	x		Michigan	1/1/42- 1/31/51	5,086,320	273	38	16.5	27	112	128	155	12	100
x			Minnesota	1/1/42- 4/30/51	2,545,663	168	38	20.9	33	96	143‖	137‖	13	60‖
			Mississippi	1/1/49- 4/30/52	1,377,808	N. A.	36	20.5	46	18	131	21	15	14
			Missouri	1/1/43-10/31/52	2,577,214	160	29	16.0	30	100	84	158	12	78
	x	x	Montana	1/1/42- 3/31/52	123,063	223	28	14.3	37	159	134	94	17	57
		x	Nebraska	1/1/42- 6/30/52	804,441	157	40	20.4	(33)	(67)	(159)	(45)	(14)	(70)
x			New Hampshire	1/1/42- 6/30/52	541,926	160	37	19.2	32	100	91	174	12	50
			New Mexico	1/1/42- 4/30/52	414,174	261	32	17.9	38	129	141	203	15	58
x		x	New York	1/1/42-12/31/51	24,404,744	120	27	14.6	50	100	174	90	17	57
		x	North Carolina	8/1/42- 7/31/52	1,610,282	255	33	17.8	24	113	92	228	10	63
			Oklahoma	1/1/43- 5/31/52	1,595,425	214	26	13.8	38	81	129	135	15	50
x			Rhode Island	1/1/43- 7/31/52	1,171,334	109	31	19.2	(53)	(77)	(167)	(103)	(18)	(50)
		x	South Carolina	10/1/41- 9/30/51	740,169	126	26	13.8	28	76	65	162	11	88
	x		South Dakota	1/1/42- 5/31/51	126,065	206	40	18.4	30	86	109	198	14	50
	x		Tennessee	1/1/42- 4/30/52	1,249,816	174	35	17.5	23	88	90	158	11	56
	x		Texas	1/1/43-12/31/52	7,958,243	269	28	16.8	37	100	126	152	15	64
		x	Utah	7/1/44- 6/30/52	599,225	146	38	22.0	36	64	98	190	13	60
	x		Vermont	1/1/43- 8/31/52	301,836	144	39	21.8	26	100	97	139	11	75
	x		Virginia	1/1/42- 2/29/52	1,488,734	143	41	20.1	28	71	90	129	12	50
x			Wisconsin	1/1/42-12/31/51	3,401,772	124	34	17.7	30	100	94	145	12	78

* Data supplied by National Council on Compensation Insurance.

† Annual averages, period increases, and ratios to premiums earned and losses incurred.

‡ x in column, 1—physician may be selected by employee; 2—medical benefits limited in time and/or amount; 3—official fee schedule; blanks—physician selected by employer, unlimited medical benefits, and no official fee schedule.

§ Data in parentheses for: California—1/1/45-12/31/51, Connecticut—1/1/45-7/31/52, Hawaii—1/1/46-7/31/52, Illinois—1/1/46-6/30/52, Iowa—1/1/42-7/31/52, Nebraska—1/1/46-6/30/52, Rhode Island—1/1/46-7/31/52.

‖ Estimated.

TABLE 9.—*Effect of Medical Control Factors on Medical and Indemnity Losses Incurred*

	1 Physician Selected by Employee	2 Physician Selected by Employer	3 Unlimited Medical Benefits	4 Limited Medical Benefits	5 No Official Fee Schedule	6 Official Fee Schedule	7* Columns 1, 3, 5	8† Columns 2, 4, 6
	Ratios for All Base Periods							
Incurred Losses	100	100	100	100	100	100	100	100
Medical %	29	34	32	33	33	31	33	37
Indemnity %	71	66	68	67	67	69	67	63
	Medians of Ratios for All Base Periods							
Incurred Losses	100	100	100	100	100	100	100	100
Medical %	33	35	34	38	35	34	34	36
Indemnity %	67	65	66	62	65	66	66	64

* States with combined factors 1, 3, 5: Massachusetts, Minnesota, New Hampshire, Rhode Island, Wisconsin.

† States with combined factors 2, 4, 6: Colorado, Georgia, Kansas, Montana.

.TABLE 10.—*Selected Statutory Provisions for Coverage Under Workmen's Compensation Laws,*[1] *January, 1953*

	A.	B.			C.	D. Exceptions from Coverage (2):				
		Insurance Provided by:								
Jurisdiction	Type of Law	Private Carrier	Self-Insurance	State Fund (12)	Occupational Diseases Covered	Employers of Less Than	Nonhazardous Employment	Farm Labor	Domestics	Others (13)
Alabama	E	X	X	....	1	8	..	X	X	..
Alaska	C	X	X	....	All	None	..	X	X	X
Arizona	C	X	X	Comp.	36	3	..	X (8)	X	..
Arkansas	C	X	X	....	All	5	..	X	X	X
California	C	X	X	Comp.	All	None	..	(3)	(4)	X
Colorado	E	X	X	Comp.	24	4	..	X	X	..
	E	X	X	....	All	3	..	..	..	X
	C (5)	X	X	....	All (5)	3	..	X	X	X
	C	X	X	....	All	None	..	X	X	..
Florida	E	X	X	....	All	3	..	X	X	X
Georgia	E	X	X	....	14	10	..	X	X	X
Hawaii	C	X	X	....	All	None	..	..	..	..
Idaho	C	X	X	Comp.	11	None	..	X	X	X
Illinois	C (5)	X	X	....	All (5)	None	X	X	X	..
Indiana	E (6)	X	X	....	All	None	..	X	X	X
Iowa	E (6)	X	X	....	16	None	..	X	X	X
Kansas	E	X	X	....	None	5 (7)	X	X	X	..
Kentucky	E	X	X	....	2	3	..	X (8)	X	X
Louisiana	E	X	X	....	6	None	X	X	X	..
Maine	E	X	X	....	14	6	..	X	X	X
Maryland	C	X	X	Comp.	All	None	X	X	X	X
Massachusetts	C	X	X	....	All	4	..	X	X	X
Michigan	C	X	X	Comp.	All	4	..	X	X	..
Minnesota	C	X	X	....	All	None	..	X (8)	X	X
Mississippi	C	X	X	....	None	8	..	X (9)	..	X
Missouri	E	X	X	....	All	11	..	X	X	X
Montana	E	X	X	Comp.	1	None	X	X	X	X
Nebraska	E	X	X	....	All	None	..	X	X	X
Nevada	C	..	..	Excl.	All	3	..	X	X	..
New Hampshire	C	X	X	....	5	5	..	X	X	..
New Jersey	E	X	X	....	All	None	..	..	..	X
New Mexico	E	X	X	....	31	4	X	X	X	..
New York	C	X	X	Comp.	All	4 (10)	..	X	(11)	X
North Carolina	E	X	X	....	25	5	..	X	X	X
North Dakota	C	..	..	Excl.	All	None	..	X	X	X
Ohio	C	..	X	Excl.	All	3	..	..	..	..
Oklahoma	C	X	X	Comp.	None	2	X	X	X	X
Oregon	E	..	..	Excl.	All	None	X	X	X	..
	E	X	X	Comp.	13	None	..	X	X	X
	C	..	..	Excl.	...	.....	..	..	..	..
Rhode Island	E	X	X	....	All	4	..	X	X	..
South Carolina	E	X	X	....	All	15	..	X	X	X
South Dakota	E	X	X	....	25	None	..	X (8)	X	..
Tennessee	E	X	X	....	9	5	..	X	X	..
Texas	E	X	..	....	45	3	..	X	X	X
United States										
Federal employees	C	..	..	....	All	None	..	..	..	..
Longshoremen	C	X	X	....	All	None	..	..	..	..
Utah	C	X	X	Comp.	All	None	..	X	X	..
Vermont	E	X	X	....	7	8	..	..	X	X
Virginia	C	X	X	....	All	7	..	X	X	X
Washington	C	..	..	Excl.	All	None	X	X	X	X
West Virginia	E	..	..	Excl.	All	None	..	X	X	X
Wisconsin	C	X	X	....	All	3	..	X	X	..
Wyoming	C	..	..	Excl.	None	None	X	X	X	X

FOOTNOTES:

(1) Table omits public employment except in United States jurisdiction.
(2) Virtually all jurisdictions also exclude casual employment. Some minor exempt categories are omitted to avoid excessive detail. In most jurisdictions exempted employers may voluntarily choose coverage, but unlike "nonelection," failure to volunteer does not result in loss of any common-law defenses in damage suits.
(3) Agricultural employers with payrolls of $500 or over are covered in absence of positive rejection.
(4) Exempt unless employed by one employer over 52 hours a week.
(5) Elective for occupational diseases.
(6) Compulsory for coal mining.
(7) None in mining and building.
(8) Threshing and/or other mechanized operations are covered; in South Dakota, limited to commercial farming.
(9) Except when commercially processing agricultural products.
(10) Numerical exception of 4 applies legally to nonhazardous employments but is seldom actually applied owing to comprehensive definition of "hazardous."
(11) Exempt unless employed 48 hours or more per week in cities of 40,000 or more.
(12) Comp., competitive state fund; Excl., Exclusive (monopolistic) state fund.
(13) Includes one or more of the following: vendors or distributors or newspapers, charity workers, outworkers, industrial homework, professional athletes, independent contractors, employees of common carriers, logging, sawmills, turpentine, woodcutters, blacksmiths, clerical workers, stock raising, etc.

SOURCE: Adapted from Somers, H. M., and Somers, A. R.: Workmen's Compensation, New York, John Wiley & Sons, Inc., 1954.

EXPLANATORY NOTES:

It is the purpose of this table to give a general picture of compensation laws; therefore detailed modifications of statutory provisions and administrative practices in individual jurisdictions are not given. While all jurisdictions agree as to the principle of workmen's compensaton, no two of them have exactly the same benefits. The law meets particular conditions. No compensation law covers all employment.

Two general methods are in effect in administering workmen's compensation laws:

1. By the courts in Alabama, Louisiana, New Hampshire, New Mexico, Tennessee and Wyoming; and
2. By commissions, boards or bureaus created by law in all others.

COLUMN A.—Type of Law

Compensation laws are either compulsory or elective. A compulsory law requires every employer within its scope to accept its provisions and to provide the benefits specified. Under an elective law, the employer may either accept or reject the act, but in case of rejection, he loses the three common-law defenses—Assumption of Risk, Negligence of Fellow Employee, and Contributory Negligence. Workmen's compensation laws are Compulsory in 22 states, the District of Columbia, Alaska, Hawaii, Puerto Rico, Federal Employees' Compensation Act and the Longshoremen's Act. Workmen's Compensation laws are Elective in 26 states.

COLUMN B.—Insurance Provided by:

All jurisdictions require the employer either to obtain insurance or to give proof of his financial ability to carry his own risk. Private insurance carriers provide insurance for employers in 41 states, the District of Columbia, Alaska, Hawaii, and under the Longshoremen's Act. Employers may self-insure in 41 states, the District of Columbia, Alaska, Hawaii, and under the Longshoremen's Act. Employers may insure their risks in competitive state funds in 11 states. In 7 states and Puerto Rico, employers must insure with the exclusive (monopolistic) state fund. Benefits are provided under the Federal Employees' Compensation Act by Congressional appropriation.

COLUMN D.—Exceptions from Coverage

Although most acts permit voluntary acceptance of its provisions by any employer, the following employers are exempt (if they wish) under compulsory laws:

1. Employers of less than 2 in 1 state. Employers of less than 7 in 1 state.
   Employers of less than 3 in 9 states. Employers of less than 8 in 3 states.
   Employers of less than 4 in 6 states. Employers of less than 10 in 1 state.
   Employers of less than 5 in 5 states. Employers of less than 11 in 1 state.
   Employers of less than 6 in 1 state. Employers of less than 15 in 1 state.
2. Employers in nonhazardous businesses in 10 states.
3. Employers of farm labor in 38 states, the District of Columbia, and Alaska with modifications in 6 other states.
4. Employers of domestics in 44 states, the District of Columbia, and Alaska with modifications in 2 other states.
5. Employers of employees in specified occupations (other) in 31 states and Alaska.

Principles of Medical Ethics and, further, to list all actions related to the same problem into special categories. This will enable the Commission to determine uniformity (or lack of it) in the approach to specific problems, and to arrive at what may be suitable recommendations with reference to them. It should be pointed out, too, that each committee of the Commission is not only responsible for the areas of study assigned to it, but is also seriously weighing the past actions of the Association as they relate to the specific areas of medical care plans.

TABLE 11.—*Selected Statutory Provisions Related to Medical Benefits Under Workmen's Compensation Laws, January, 1953*

	A.	B. Maximum Time and Amount		C.	D.	E.
Jurisdiction	Physician Selected by	Accidents	Occupational Diseases	Artificial Appliances	Official Fee Schedules	Rehabilitation Available (1952)
Alabama	E	90 days; $500	90 days; $500	Yes (a)	....	....
Alaska	E	2 yr.	2 yr.	Yes	....	....
Arizona	E	Unlimited	Total disability, $500	Yes	Yes	Yes
Arkansas	E/C	Unlimited	Silicosis and asbestosis, 180 days	Yes	....	Yes
California	E/C	Unlimited	Unlimited	Yes	Yes	....
Colorado	E/C	6 mo.; $1,000	$500	Yes	Yes	....
Connecticut	EE/P	Unlimited	Unlimited	Yes	....	....
Delaware	E	Unlimited	Unlimited	No	....	....
District of Columbia	E	Unlimited	Unlimited	Yes	....	Yes
Florida	E	Unlimited	Unlimited	Yes (a)	Yes	Yes
Georgia	E	10 wk.; $750	10 wk.; $750	Yes (a)	Yes	....
Hawaii	E/C	Unlimited	Unlimited	Yes	....	....
Idaho	E/C	Unlimited	Unlimited	Yes	Yes	....
Illinois	E/C	Unlimited	Unlimited; except silicosis and asbestosis, 6 mo.	Yes	....	....
Indiana	E/C	Unlimited	Unlimited	Yes	....	....
Iowa	E	$2,500	$2,500	Yes	....	....
Kansas	E	120 days; $1,500	*Not covered*	No	Yes	....
Kentucky	E/C	$2,500	$2,500	Yes (a)	....	....
Louisiana	E	$1,000	$1,000	Yes (a)	....	....
Maine	E/C	Unlimited	Unlimited	Yes	....	....
Maryland	E/C	Unlimited	Unlimited	Yes (a)	Yes	....
Massachusetts	EE	Unlimited	Unlimited	Yes	....	Yes
Michigan	E	2 yr.	2 yr.	Yes	....	....
Minnesota	EE	Unlimited	Unlimited	Yes	....	Yes
Mississippi	E/C	Unlimited	Not covered	Yes	....	Yes
Missouri	E/C	Unlimited	Unlimited	Yes	....	Yes
Montana	E/EE	9 mo.; $1,000	Silicosis only; limited	Yes	Yes	....
Nebraska	E/C	Unlimited	Unlimited	No	Yes	....
Nevada	EE	18 mo.	$750 for silicosis	Yes	Yes	....
New Hampshire	EE	Unlimited	Unlimited	(b)	....	....
New Jersey	E	Unlimited	Unlimited	Yes	....	Yes
New Mexico	E/C	Unlimited	Unlimited	Yes	....	....
New York	*EE/P*	*Unlimited*	Unlimited	Yes	Yes	Yes
North Carolina	E/C	Unlimited	Unlimited, except silicosis and asbestosis, $3,000	Yes	Yes	Yes
North Dakota	EE	Unlimited	Unlimited	Yes	Yes	Yes
Ohio	E/EE	Unlimited	Unlimited	Yes	Yes	Yes
Oklahoma	E	Unlimited	Not covered	Yes	....	....
Oregon	EE/AA	Unlimited	Unlimited	Yes	Yes	Yes
Pennsylvania	E	90 days; $225 plus hosp.	90 days; $225 plus hosp.	Yes	....	....
Puerto Rico	EE/AA	Unlimited	Unlimited	Yes	....	....
Rhode Island	EE/AA	Unlimited	Unlimited	Yes	....	Yes
South Carolina	E	Unlimited	Unlimited	Yes	Yes	....
South Dakota	E/C	20 wk.; $1,000	20 wk.; $1,000	Yes (a)	....	....
Tennessee	EE/P	6 mo.; $800	6 mo.; $800	Yes	....	....
Texas	E/C	91 days med.; 180 days hosp.	91 days med.; 180 days hosp.	Yes	....	....
United States						
Federal employees	E	Unlimited	Unlimited	Yes	....	Yes
Longshoremen	E/C	Unlimited	Unlimited	Yes	....	Yes
Utah	E	Unlimited	Total disability; $1,500	Yes	Yes	Yes
Vermont	E/C	90 days; $1,000	60 days, $300 for silicosis and asbestosis	No	....	....
Virginia	E/C	10 mo.	12 mo.	Yes	....	....
Washington	E/EE	Unlimited	Unlimited	Yes (a)	Yes	Yes
West Virginia	EE/AA	$2,400	$2,400; none for silicosis	Yes (a)	Yes	Yes
Wisconsin	EE/P	Unlimited	Unlimited	Yes	....	Yes
Wyoming	EE	Unlimited	Not covered	Yes	Yes	....

FOOTNOTES:

(a) *Included in total amount for medical care.*

(b) Replacement of artificial members if damaged in accident.

SOURCE: Adapted from Somers, H. M., and Somers, A. R.: Workmen's Compensation, New York, John Wiley & Sons, Inc., 1954.

EXPLANATORY NOTES:

COLUMN A.—Physician Selected by:

In 31 states, Alaska, District of Columbia, Hawaii, and under the Federal Employees' and Longshoremen's Acts, selection of physician is vested in the employer by statutory provision or judicial interpretation; in 19 of these jurisdictions, the carriers appear to assist in the selection made by the employer. Individual employers may permit employees to select the physician or surgeon under certain circumstances in a few jurisdictions (E or E/C).

In 4 states, the employee may select the physician or surgeon from a panel furnished by the employer or carrier. In New York, the panel is established by the county medical societies and any doctor on the panel may be chosen. In Wisconsin, the state medical society issues a list of doctors who will accept workmen's compensation cases, which list is usually adopted as the employer's panel (EE/P).

In 13 jurisdictions (8 of which are exclusive state fund jurisdictions) the employee may select any physician, provided that:

1. In Minnesota, Nevada, North Dakota and Wyoming only initial selection of physician is unrestricted (EE).
2. In Montana and Washington, there are no contractual arrangements for medical care made by employers to the contrary (E/EE).
3. In Ohio, self-insured employers may select the physician, while employers insured in the exclusive state fund must permit their employees to select their own physicians or surgeons (E/EE).
4. In West Virginia, Oregon, Puerto Rico and Rhode Island, the selection is subject to the approval of the administrative agency which may transfer the case to another physician (EE/AA).
5. In New Hampshire, the employee may select "a qualified physician or other remedial care" (EE).
6. In Massachusetts, the employee may accept the services of the physician selected by the employer or select his own (EE).

SUMMARY AND RECOMMENDATIONS

On the basis of the recommendations of each of the committees of the Commission and the thorough discussions that have taken place among all its members, the Commission on Medical Care Plans recognizes even more fully the tremendous responsibility with which it has been charged. It recognizes also the obligation it has to the medical profession and to the public, and therefore feels that it cannot make any final recommendations to the Board of Trustees other than the three indicated below until it has pursued more intensively the areas of study under consideration. It feels that pronounced progress has been made thus far and that its efforts at further objective research and study will result in basic and fundamental recommendations, which it hopes will assist the medical profession and the Association in determining its future role in safeguarding the highest quality of medical care for the American people. For the foregoing reasons, action has been deferred with respect to Resolutions 1 and 11 (1954 Clinical Session) and Resolutions 19, 50, 63, and 68 (1955 Annual Session).

Each of the four committees appointed by the Chairman has presented proposals and recommendations for further study and analysis that have been accepted by the Commission. A mail questionnaire technique is being employed to elicit additional information in several of the areas of study. The continuing collation of existing data will also be of material assistance.

Based upon its deliberations the Commission had three recommendations to make to the Board of Trustees. They were that:

1. The report of the Council on Medical Service presented to the Board of Trustees on May 24, 1955, which included a suggested substitute resolution to Resolution 12 by Dr. James Z. Appel of Pennsylvania (Resolution on Relationship Between Component County Societies and Lay-Sponsored Health and Welfare Plans) be adopted, i. e.:

"WHEREAS, The medical profession is dedicated to the provision of medical care in the public interest; and

"WHEREAS, It is essential in providing the best medical care to the public that the profession be concerned not only with the planning of facilities but also with the maintenance and improvement of standards therein; and

"WHEREAS, The experience of the Council on Medical Service indicates that benefits may accrue to the public by encouraging state and county committee activities in this field; and

'WHEREAS, The profession recognizes that the community has a vital concern regarding the availability and operation of medical facilities; and

"WHEREAS, Medical facilities are being sponsored or established by non-medical groups in some areas; therefore be it

"*Resolved*, That constituent associations and component societies be encouraged to designate committees whose functions may include but need not be limited to:

1. Maintaining continuous studies with respect to existing health facilities as well as needs;

2. Consulting with groups having an interest in health facilities; and

3. Advising groups or individuals interested in sponsoring, establishing or improving health facilities."

2. The Board of Trustees recommend to the House of Delegates that the Constitution and Bylaws be amended to provide that amendments to the Principles of Medical Ethics proposed at a session of the House of Delegates shall be held over until the next session before final action is taken; and that during this period the Judicial Council shall consider such proposed amendments and report to the House of Delegates at the Session at which final action is taken.

3. The Pearson committee of the Commission be authorized to meet with leading figures among the general public in order to obtain their interpretations of the Principles of Medical Ethics. In the opinion of the Commission such a committee would not overlap the activities of the Hess labor-management liaison committee but would, in fact, supplement some of the latter's efforts.

The Board of Trustees, at its meeting on Oct. 23, 1955, voted to adopt recommendation 1 and to refer the substitute Resolution 12 to the House of Delegates; recommendation 2 was approved and referred to the Council on Constitution and Bylaws for consideration and implementation at the Boston meeting, and action on recommendation 3 was deferred until a later meeting.

The Commission wishes to acknowledge the efforts of the headquarters staff in assembling for its use a voluminous and imposing array of materials and data. This exhaustive effort reflects the attitude of the Board of Trustees in assuring the Commission access to all available resources through which its task can be expedited. It is indicative of an awareness of the high priority assigned to this project, as well as the resolve that every effort will be expended to make the Commission's study one that will be a contribution to the medical profession and to the public it serves.

SESSION ON ALLERGY IN SECTION ON MISCELLANEOUS TOPICS, CHICAGO MEETING, 1956

Any member who wishes to present a paper at the Allergy Session of the Annual Meeting to be held in Chicago should write for "Suggestions for Authors of Section Papers" and "Standing Rules of Sections." Abstracts of papers will be accepted for possible inclusion in the program until Jan. 31, 1956. Time and place will be announced at a later date. For information write the Secretary, Lester L. Bartlett, M.D., 550 Grant St., Pittsburgh 19.

CHANGES IN DIVISION OF THERAPY AND RESEARCH

Effective Nov. 5, 1955, the Division of Therapy and Research, by action of the Board of Trustees, was renamed the Division of Councils of Therapy and Research and Dr. Robert T. Stormont was named Director. The Division is composed of the headquarters staff of the Council on Pharmacy and Chemistry, Council on Foods and Nutrition, Council on Physical Medicine, Committee on Research, Committee on Pesticides, Committee on Toxicology, Committee on Cosmetics, Bureau of Investigation, and A. M. A. Laboratories. In addition, Dr. Harold Kautz was designated Secretary of the Council on Pharmacy and Chemistry and Mrs. Veronica Conley, Secretary of the Committee on Cosmetics.

MEDICINE AND THE LAW

HOSPITAL'S LIABILITY FOR NEGLIGENCE OF LABORATORY TECHNICIAN

It has been the opinion of the House of Delegates of the American Medical Association since 1943 that the practice of medicine includes the practice of pathology or, to put it another way, that the practice of pathology is the practice of medicine. Since that time the question has often been raised as to whether or not certain laboratory tests utilized by a pathologist are, in and of themselves, the practice of medicine. One of the very few cases involving this question was recently decided by the supreme court, trial term, New York County, Part XX New York.[1] The case is of interest for both its legal and medical findings.

Mrs. Berg, suffering from rheumatoid arthritis, entered the defendant's hospital in March, 1947, for a course of treatment that involved among other things the administration of 500 cc. of blood. Prior to performing the transfusion, a sample of her blood was sent to the hospital's laboratory and the technician who tested it reported that Mrs. Berg's blood was type A, Rh positive. Pursuant to this report, she was transfused with Rh positive blood, the transfusion being stopped when she started to develop an unfavorable reaction. Mrs. Berg was discharged from the hospital in April. In May or early June she became pregnant and was directed by her family physician to a laboratory in Elizabeth, N. J., for the purpose of determining her blood type and Rh factor. It was then discovered, and later verified, that she was type A, Rh negative.

The infusion of Rh positive blood into an Rh negative female, said the court, causes antibodies to be created, and she becomes sensitized. In the event that such a female should become pregnant with an Rh positive fetus, such antibodies will in all likelihood cause the fetus to have a blood disease known as fetal erythroblastosis, which, when very severe, may result in stillbirth. During the course of Mrs. Berg's pregnancy it was established that the fetus was an Rh positive one, since her titer index (the quantity of antibodies in the blood) rose substantially. She was advised that this increased titer would in all probability be fatal to the fetus. On Dec. 2, 1947, the fetus died, but Mrs. Berg was advised to carry through for the full period. On Dec. 30, 1947, Mrs. Berg was admitted to St. Elizabeth's Hospital in Elizabeth, N. J., where, after an entire day of labor, she delivered a stillborn macerated female fetus. Undoubtedly, said the court, the cause of the stillbirth was the infusion of the Rh positive blood into Mrs. Berg. This wrongful infusion of incompatible blood into the mother created the blood disease of fetal erythroblastosis, which was the competent and producing cause of the macerated fetus.

An Rh negative female has an excellent chance of carrying through uneventfully at least one Rh positive fetus, the court found, assuming, of course, that she has not previously been sensitized by a transfusion of Rh positive blood, which to her would be incompatible; she might even carry through successfully a second and third positive fetus. In this case Mrs. Berg became highly sensitized by the transfusions of incompatible Rh positive blood. This sensitization undoubtedly caused the stillbirth. The result was that she could not thereafter carry through successfully an Rh positive fetus. Because of the circumstances, the attending physician at the delivery found it necessary to use manual pressure upon the abdomen for a much longer period than is usual or customary. This unusual and sustained manual pressure caused various internal difficulties that subsequently required medical treatment and ultimately an operation. Mrs. Berg suffered a cystocele, rectocele, and prolapsed uterus, and she subsequently submitted to a vaginal hysterectomy, thus not being able to become pregnant again.

The evidence, said the court, supported the plaintiff's contention that the laboratory technician was negligent in performing the blood test to determine Mrs. Berg's Rh factor. The defendant made no effort to explain how the mistake occurred but sought to get the plaintiff's witnesses to admit that the Rh positive finding could have been caused by weak or impure serum purchased from outside laboratories. The plaintiff's witnesses were in agreement, and the court found that weak or impure serum would result in an Rh negative finding but could never result in an Rh positive finding if the person being tested was, in fact, Rh negative.

In a letter[2] dated Jan. 24, 1955, to the Committee on Medicolegal Problems, Dr. A. S. Wiener, Brooklyn, N. Y., member of the Committee, in discussing this case said, in part:

> "The fact is that a weak serum will give false negative reactions, so that blood which is Rh positive might be incorrectly diagnosed as Rh negative. On the other hand, an impure or contaminated or nonspecific serum may give false positive reactions so that blood which is Rh negative may be incorrectly diagnosed as Rh positive."

The primary contention raised by the defendant was that, even if the laboratory technician was negligent, it was not responsible for this negligence, because the performance of a test to determine the Rh factor of a blood sample taken from a patient is a medical act and not an administrative one. The court stated that whether the testing of blood for these purposes by a laboratory technician employed in the hospital's own laboratory is a medical act or an administrative one was a question of law and that in its opinion the test performed by the laboratory technician was an administrative act. It was held in this case that the technician was not performing any medical act but was conducting a simple chemical test. In the opinion of the court the act did not involve or require any decision on the part of the technician as to treatment or care of the patient and did not embrace the exercise of judgment as to the nature, character, and symptoms of a disease, the determination of the proper remedy for the disease, or the giving or prescribing of a remedy for the disease. None of these elements was found to be present in the act performed by the defendant's laboratory technician. Accordingly, the court decided that the laboratory technician was guilty of negligence, and judgments were awarded against the defendant hospital in favor of both Mrs. Berg and her husband.

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[1] *Berg* v. *New York Society for the Relief of the Ruptured and Crippled,* 136 N. Y. S. (2d) 528 (N. Y., Dec. 30, 1954).

[2] Wiener, A. S.: Personal Communication to the Committee.

A District of Columbia case decided in 1950 [3] and a case decided by the New York appellate division in 1953 [4] were cited in the Berg case as authority for the court's decision. In the former the hospital was held liable for the technician's error, which resulted in transfusion of incompatible blood; in the latter the employer was held liable for injuries to a job applicant by a physician in its medical department in obtaining a blood sample.

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[3] *National Homeopathic Hospital* v. *Phillips*, 181 F. (2d) 293.

[4] *Mracheck* v. *Sunshine Biscuit, Inc.*, 126 N. Y. S. (2d) 383.

PUBLIC RELATIONS

Tomorrow's Citizens Learn Health Responsibilities

Americans today are a lot better informed about good health and about medicine in general than ever before. But what about tomorrow's citizens? Are they learning the essentials of individual good health? And what is equally important—are they learning that they have a vital stake in community health?

Leadership in health education rightfully falls into the domain of the medical profession. Physicians know that their responsibilities to their patients and their communities encompass not only medical service but health education as well. Through speakers' bureaus and health forums, and radio and television programs, physicians are bringing authentic health information to both adults and students. In at least one state, Tennessee, physicians and their wives are incorporating in their educational activities a project designed to instill in the younger generation a feeling of responsibility for community health.

For the past three years the Woman's Auxiliary of the Tennessee State Medical Association has sponsored a statewide Health Project Contest in high schools. Now approved and distributed by the state department of education, the project is designed to bring groups of students together to work toward common health improvement goals in their schools and communities. Individual classes or an entire school may enter the contest by selecting and carrying out a project such as a sanitation survey, an immunization drive, a nutrition program, a public health education campaign, or a similar activity. A $500 savings bond is awarded to the group completing the best project, and a second prize of a $100 bond is given the runner-up. Two representatives of the class, group, or school winning the grand prize receive an expense-paid trip to the annual meeting of the Tennessee State Medical Association to report on their project before the association's house of delegates.

The contest's aim is to teach Tennessee youth the value of good health and to illustrate the value of well-planned group action to the American way of life. In addition, the contest is designed to insure continued enlightened cooperation between the public and the medical profession toward the common goal of healthy and productive living through the wise application of the medical arts and sciences.

The Tennessee State Medical Association in a report on this project said: "Our original contest was of the essay type, and reached the same small group each year without measurably affecting the majority of the students in the schools. We believe, because it is a 'doing' rather than a 'writing' contest, that it gives all the participating students an opportunity to gain a better insight into health problems and to think constructively toward their solution." Encouragement for the contest is supplied by woman's auxiliary members, who urge both teachers and students to take an active interest in the project.

Public Relations Conference Tells 1956 Outlook

"America, '56—What's Ahead for American Medicine" was the theme for the American Medical Association's 1955 Public Relations Conference, held on Nov. 28 at Boston's Hotel Statler, just prior to the Association's Clinical Session. A penetrating discussion of the free enterprise system and the inroads made upon it in recent years by socializers, pinpointed to the interests of the medical profession was held.

At the morning session, A. M. A. President-Elect Dwight H. Murray, Napa, Calif., gave the keynote address, followed by a symposium outlining what is ahead in 1956 in legislation, medical service, and public relations. Erle Cocke Jr., Atlanta, Ga., vice-president, Delta Airlines titled his luncheon address "Where Goes Our Nation?" Congressman Thomas B. Curtis, Missouri, and Leonard E. Read, president, Foundation for Economic Education, spoke on snowballing social security at the afternoon session, and other outstanding speakers, including Massachusetts Governor Christian A. Herter, appeared. Dr. Edward J. McCormick, Toledo, Ohio, past-president of the A. M. A., gave the concluding talk.

The national Medical Public Relations Conference is one of two annual public relations meetings conducted by the A. M. A. as a service to state and county medical societies. The conference is a policy meeting, planned primarily for society officers and committee chairmen who establish public relations policy.

What the Doctor Never Hears

When patients are unhappy or irritated about some experience connected with securing medical care, they rarely take their complaints direct to the doctor. Generally, the physician goes his way unaware of their grievances. Most of these complaints are aired over the bridge table, over lunch, or in any one of a hundred everyday situations. Occasionally, however, some individuals feel strongly enough to write a letter to the editor of their newspaper.

A recent letter of this type, published in the Fresno (Calif.) *Bee,* focuses attention on a doctor-patient relationship problem requiring public relations action by individual physicians. Here is a brief resume of the letter: "I have heard many people remark about the doctors of today spending so little time with you when you go in to see them. They hardly take time to find out what your ailment is before you're whizzed out of the room. . . . I was in a doctor's office the other day waiting and a man said to me, 'I sure hate to go in and see him. Every time I go in he looks like and treats me like a bear.' I told him I have experienced the same thing and have heard others say that they have too. What is wrong, is the doctor angry because I am ill or because I don't come in often enough? I always pay my bill at the time of the office call. . . . The doctor of yesterday was interested in making you well—not getting all the money he could from you."

The good will and friendship of patients are not won in hurried five-minute interviews or with the quick scribbling of a prescription. Often a physician must work hard to cultivate the gentle, interested, and reassuring manner that patients expect. This is no easy task when the physician is feeling the pressures of a busy practice and a demanding schedule. Patients resent being rushed through an interview with the doctor. The physician must give the impression he has plenty of time to listen to each patient's problems.

One physician points out, however, that "the complaint, perhaps minor to the doctor, is major to the patient. Frequently listening patiently and making a careful examination means more to the patient than the drug or treatment prescribed."

Patients want and expect personalized treatment, and here are some suggestions from a number of doctors on how to give that type of "individualized service": First, cultivate a calm, assured manner. Second, show interest in the patient. Third, give evidence of sympathy, yet retain firm control of the interview. Fourth, give your full attention to the patient. People soon lose confidence in the "absent-minded professor" type of physician. And last, take time to listen patiently. With these public relation attitudes in mind, a physician can eliminate the sources of friction that lead some patients to voice their complaints to the world via the columns of the local newspaper.

PRoblem Corner

How can a physician convey to his patients his sincere desire to serve their medical needs to the best of his ability? How can he fully answer their many questions about various aspects of medical service, about hospitalization, and about the cost of medical and related services? How can he explain the relationships of the various members of the medical team in order that his patients understand that complete medical care often is a cooperative thing? How can he best establish himself as his patient's personal physician?

Few physicians today can take time to achieve this kind of understanding with each patient through individual conversations. A number of physicians have written leaflets for their patients in which they attempt to answer some of these questions in advance. These individual doctors' leaflets have been so well received by patients that the American Medical Association has prepared one as a service to its members, which physicians can distribute to their patients to build a better doctor-patient relationship. Entitled "To All My Patients," it is available in quantity free of charge to all members of the Association from the Public Relations Department.

The pocket-sized "To All My Patients" explains the patient's role in obtaining good care and points out that there are many kinds of doctors, but they all have the same goal—provision of top-quality medical service. It discusses briefly consultation, medical fees, bills for other medical expenses, the hospital, and medical insurance. The leaflet opens with these words: "I appreciate the confidence you have expressed in me by selecting me as your physician. I sincerely hope that I can give you and your family the kind of medical service you desire. If you have questions about my services or fees, hospitalization, or other aspects of your care, please discuss them frankly with me. The best medical service is based on a friendly, mutual understanding between a doctor and his patient."

It concludes with this message: "It is difficult for a physician briefly to explain every service necessary in providing good care because each case is different. I sincerely hope this leaflet will give you a better understanding of some of the services you may require. Again, I invite you to talk things over. If we do so, it will help me to become your personal physician in every sense of the word."

MEDICAL NEWS

CALIFORNIA

Lecture on Poliomyelitis.—In the annual lecture series sponsored by University Extension and the University of California Medical School in Los Angeles, "The Epidemiology and Prevention of Poliomyelitis" will be presented by Dr. Edwin H. Lennette of the Viral and Rickettsial Disease Laboratory, California State Department of Public Health, Berkeley, Dec. 12, 7:30 p. m. in the first floor lecture hall (room 13-105) of the medical center.

Personal.—Dr. Lester Adelson, formerly of Cleveland, where he was chief deputy coroner of Cuyahoga County, has been appointed chief deputy coroner of Los Angeles County. His appointment and the charter amendment plan that is expected to result in the reorganization of the department, making the coroner a medical officer, conformed to recommendations by the Los Angeles County Medical Association.——Dr. Wilton L. Halverson has been named by President Eisenhower to the International Development Advisory Board for a two year term. Since his resignation as state director of public health, Dr. Halverson has been chairman of the department of preventive medicine and public health of the University of California at Los Angeles School of Medicine.

Rabies Endemic in Many Counties.—The California Department of Public Health has declared animal rabies endemic in 26 counties on the basis of the increase in reported cases this year, 291 cases (154 in dogs and 126 in wild animals) having been recorded in the first 10 months. This compares with a total of 83 cases (33 in dogs and 43 in wild animals) reported in 19 counties for all of 1954. Rabies currently is endemic in the counties of Alameda, Amador, Butte, Colusa, El Dorado, Fresno, Humboldt, Lake, Los Angeles, Marin, Mendocino, Merced, Monterey, Napa, Sacramento, San Benito, San Joaquin, Shasta, Solano, Sonoma, Stanislaus, Sutter, Tehama, Tulare, Ventura, and Yolo. Local health authorities in the 26 counties will determine, in consultation with the state health department, the nature of control actions required, including the boundaries for quarantine of dogs.

COLORADO

Narcotic Violation.—Dr. George L. Robinson, 1747 Williams St., Denver, pleaded guilty in the U. S. District Court at Denver Sept. 30 to a charge of violating the Federal narcotic law. On Oct. 4 he was sentenced to a term of one year and one day and is to be placed on probation for two years, to commence at the end of the time to be served.

Memorial to Dr. Gerald Webb.—A Dr. Webb memorial committee has been formed in Colorado Springs to further the establishment in the new Glockner-Penrose Hospital of a memorial to the late Dr. Gerald B. Webb. Physicians serving on the committee include Harold H. Gile and John L. McDonald, Colorado Springs, John A. Sevier, Broadmoor, and James J. Waring, Denver, president of the Colorado Foundation for Research in Tuberculosis, which was founded by Dr. Webb in 1924. Plans for the memorial came as a spontaneous development in the current building fund drive to replace the present Glockner-Penrose Hospital, of which Dr. Webb was a staff member for more than 50 years, with a modern 300-bed structure, at a cost of about $5,400,000.

CONNECTICUT

Program on Neurologic Disorders.—Yale University School of Medicine will present a program, "Management of Chronic Neurologic Disorders," at 4 p. m., Dec. 7, in the Trask Room, Yale-New Haven Medical Center. Collaborators will be Drs. William J. German, professor of neurosurgery, Gilbert H. Glaser, assistant professor of neurology, and Thomas F. Hines, assistant professor of medicine.

Meeting on Cardiology.—On Dec. 14 at 8 p. m. "The Unequal Distribution of Red Cells and Plasma Within the Kidney: A Theory for Renal Hemodynamics" will be discussed by John R. Pappenheimer, Ph.D., professor of physiology, Harvard Medical School, Boston, under the sponsorship of the Cardiovascular Study Unit, Yale University School of Medicine, New Haven. The program, which is open without charge to all interested physicians, will be presented in the Fitkin Amphitheater.

Lectures on Medical Economics.—A series of lectures on economics of medical practice will be presented by the Connecticut State Medical Society and the department of public health, Yale University School of Medicine in the Brady Auditorium (310 Cedar St., New Haven) on Thursday at 4 p. m. The course, which comprises nine lecture and discussion classes, is open to medical students, graduate students, law students, interns and residents, and physicians. The first lecture (Dec. 2), "Medical Organization in the United States: Its Functions and Objectives" will be delivered by Dr. Ernest B. Howard, Assistant Secretary, American Medical Association, Chicago. On Dec. 15 "Entering Practice—Choosing a Location, Placement Services, State and Local Medical Societies, Professional Amenities, Announcements, Insurance" will be the subject of Dr. Creighton Barker, executive secretary, Connecticut State Medical Society.

ILLINOIS

Psychiatric Lecture.—Dr. Lewis L. Robbins, director, department of adult psychiatry, Menninger Foundation, Topeka, Kan., will present "Management of the Anxious Patient" Dec. 7, 8 p. m., at the North Shore Health Resort, 225 Sheridan Rd., Winnetka.

Dr. Proxmire Honored.—Dr. Theodore S. Proxmire, now in his 50th year of practice in Lake Forest, was recently honored at the annual Lake Forest day, which he originated in 1909. Dr. Proxmire's service to the community was the theme of floats in a parade that ended in West Park, where several hundred persons, at whose births he had officiated, participated in a program. The Lake Forest Woman's club presented him with $500, which he turned over to the Multiple Sclerosis Foundation.

Chicago

Dr. Rodbard Goes to Buffalo.—The University of Buffalo has announced the appointment of Dr. Simon Rodbard, assistant director of the Medical Research Institute at Michael Reese Hospital, as director and professor of experimental medicine of its Chronic Disease Research Institute.

Monthly Cardiac Conference.—The monthly clinicopathological cardiac conference of Cook County Hospital will be held Dec. 9 from 11 a. m. to 12 noon in the Children's Amphitheater, 700 S. Wood St. "The Present Status of Atherosclerosis" will be presented by Dr. Jeremiah Stamler, assistant director, cardiovascular department, Michael Reese Hospital.

Annual Institute Meeting.—The Institute of Medicine of Chicago, 86 E. Randolph St., will hold its 40th annual meeting Dec. 6 at the Furniture Club of America, 17th floor, 667 N. McClurg Ct. The annual reception and dinner for fellows of the institute, their wives, and other guests will precede the annual meeting at 8:30 p. m. The presidential address, "And the Valley Awakened," will be delivered at an open meeting, 9:30 p. m., by Dr. LeRoy H. Sloan. Telephone during the meeting: WHitehall 4-8552.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

First Lyon Award.—At the annual outing of the medical staff and alumni of St. Luke's Hospital, Dr. Paul H. Holinger, president of the medical staff, presented the first Dr. Will F. Lyon award to Dr. Gerald J. Kavanaugh, formerly of Fargo, N. D., now a fellow at the Mayo Foundation, Rochester, Minn. The award, sponsored by International Harvester Company in honor of Dr. Lyon, retired head of their medical department, is given annually to the St. Luke's intern who, ". . . in the performance of his duties, best exemplifies the high devotion and dedicated service which have characterized Dr. Lyon's professional career."

American Hospital Association.—At the ground-breaking ceremony, Nov. 9, for the proposed 17-story American Hospital Association headquarters and Center for Hospital Affairs at Pearson Street and Lake Shore Drive, Mayor Richard J. Daley said, "Chicago has often been described as the medical midpoint of the United States, and we think justly so—with so many fine national health organizations, medical teaching institutions and hospitals located here. We believe that the presence of the American Hospital Association headquarters and Center for Hospital Affairs will add to Chicago's already great luster as a health center." Other speakers included Dr. J. Roscoe Miller, president of Northwestern University, and Dr. Edwin L. Crosby, director of the American Hospital Association, who presided at the ceremonies. The new building, which will be constructed on a site made available to the association by Northwestern University, will cost about $4,850,000.

KANSAS

Medicolegal Seminar.—The Sedgwick County Medical Society will offer a seminar on legislative and medicolegal subjects, Jan. 6, 1956. Harvey T. Sethman, executive secretary, Colorado State Medical Society, will speak on national legislation affecting the practice of medicine. Mr. William Tinker, attorney for the Medical Protective Insurance Company, will speak on the increase in malpractice suits.

KENTUCKY

Survey on Rehabilitation Needs.—The newly appointed Governor's Committee on Rehabilitation will conduct a survey to encompass the resources and needs for training the physically and mentally handicapped in Kentucky. The survey will be under the supervision of the Legislative Research Commission. Physicians serving on the committee are J. Gant Gaither, Hopkinsville, president-elect, Kentucky State Medical Association; J. Murray Kinsman, Louisville, dean, University of Louisville School of Medicine; Franklin B. Moosnick and Marshal M. Jones, both of Lexington; and Asa Barnes, Louisville, who also serves as an alternate on the executive committee.

MARYLAND

Psychiatrist Goes to Ohio State.—Dr. Benjamin Pasamanick, formerly associate professor, division of mental hygiene, Johns Hopkins School of Hygiene, Baltimore, has been appointed professor of psychiatry at the Ohio State University College of Medicine, Columbus, and director of research at the Columbus State Psychiatric Institute. Dr. Pasamanick organized and administered residential and outpatient children's psychiatric services at the Michigan Neuropsychiatric Institute and the Kings County Hospital and has held teaching appointments at Yale University School of Medicine, New Haven, Conn.; University of Michigan Medical School, Ann Arbor; Long Island College of Medicine, Brooklyn, now State University of New York; and Johns Hopkins University School of Medicine, Baltimore. In 1949 he received the first Hofheimer Research prize awarded by the American Psychiatric Association.

MASSACHUSETTS

University News.—Tufts College, Medford, will hold its first academic convocation Dec. 8. The theme, "The Role of the Small University in American Higher Education," will be developed in symposiums at 10:30 a. m. in Cohen Auditorium. At 3 p. m. the academic convocation will be held in the Cousens Gymnasium. Guest speakers will be Arthur Sherwood Flemming, LL.D., Delaware, Ohio, and Roy Edward Larson, LL.D., L.H.D., New York City.

Course on Cardiology.—"The Heart and Great Vessels in 1955" is the subject of a course that will be presented Dec. 5-10 at the Massachusetts General Hospital, Boston, under the auspices of the American College of Physicians and the direction of Dr. Paul D. White. The fee for A. C. P. members is $30; for nonmembers, $60. Among others, the officers of instruction will include the following out-of-state physicians: E. Cowles Andrus and Helen B. Taussig, Baltimore; Charles P. Bailey, Philadelphia; Eugene Lepeschkin, Burlington, Vt.; Irvine H. Page, Cleveland; and Irving S. Wright, New York. There will be an appraisal of epidemiological and clinical follow-up studies, diagnostic techniques, and medical and surgical methods of treatment.

MICHIGAN

High Diabetes Mortality Rate.—The Michigan Department of Health reports that among the five leading causes of death in Michigan, diabetes is the only disease with a death rate that is higher than the rate for the country as a whole. Michigan's death rate in 1954 was 20.9 deaths per 100,000 population (1,469 diabetes deaths); the estimated rate for the nation was 15.4.

MINNESOTA

Personal.—Dr. Charles W. Mayo, Rochester, was recently elected a trustee of the University of Pennsylvania in Philadelphia. Dr. Mayo is an alumnus of the University of Pennsylvania School of Medicine.

Conference on Child Development.—The University of Minnesota, Minneapolis, announces a conference on the concept of development, in recognition of 30 years of research in child development at the university under the leadership of John E. Anderson, Ph.D., professor, Institute of Child Welfare. Meetings will be held in the Museum of Natural History Auditorium, Dec. 8-10. Physicians participating will include: John A. Anderson, head, department of pediatrics, University of Minnesota Medical School, Minneapolis (The Meaning of Growth and Development in the Practice of Pediatrics) and Hyman S. Lippman, director, Amherst H. Wilder Child Guidance Clinic, St. Paul (The Relation Between Early Childhood Development and Psychopathology). A dinner in honor of Dr. John E. Anderson will be held in the Junior Ballroom of the Coffman Memorial Union at 6:30 p. m., Dec. 8. Tickets, $3.50 each, may be secured from Dale B. Harris, Director, Institute of Child Welfare, University of Minnesota, Minneapolis 14.

NEW JERSEY

Personal.—Dr. Chester I. Ulmer, Gibbstown, was the guest of honor at a testimonial dinner sponsored by the Gibbstown Lions Club, Oct. 1, in recognition of his almost 40 years of professional service to the community. More than 400 citizens of Gibbstown and vicinity gathered in St. Michael's Hall to pay tribute to Dr. and Mrs. Ulmer.

Slide Seminar on Tumors.—The fifth annual slide seminar on "Unusual Tumors," sponsored by the New Jersey Society of Clinical Pathologists and the New Jersey State Department of Health (Bureau of Pathology) will be held Dec. 10 at 2 p. m. at the Nurses Auditorium, Presbyterian Hospital, Newark. The moderator will be Dr. Arthur Purdy Stout of Francis Delafield Hospital, Columbia University College of Physicians and Surgeons, New York.

Meeting of Chest Physicians.—The New Jersey chapter, American College of Chest Physicians, is presenting its fall scientific meeting Dec. 6, 8:45 p. m., at the Roosevelt Hospital for Chest Diseases in Metuchen. An x-ray conference dealing primarily with the residual sterile tuberculous cavity will have as panel discussants Drs. Oscar Auerbach, East Orange; Frank Bortone, Jersey City; Benjamin Copleman, Perth Amboy; Paul Geary, Plainfield; and Irving J. Selikoff, Paterson.

Martland Award.—The Essex County Pathological and Anatomical Society offers a prize of $250 under the annual Harrison S. Martland award for the best unpublished paper on pathology or anatomy or any of their phases. The essayist shall be known to the committee of judges by number only. Contestants are limited to all qualified hospital interns and residents in the state of New Jersey. Contributions must be in English, in manuscript form, in five copies, not exceeding 5,000 words, and mailed not later than Dec. 15, 1955, to Dr. Murray W. Shulman, Chairman, 913 S. 20th St., Newark 8.

Second Martland Lecture.—The annual Harrison S. Martland dinner, Dec. 14, 6:30 p. m., at the Essex House, 1050 Broad St., Newark, will precede the second Harrison S. Martland Memorial Lecture by Dr. Arthur M. Fishberg, director of medicine, Beth Israel Hospital, New York City, at the Academy of Medicine of New Jersey, 91 Lincoln Park South, Newark. Dr. Fishberg will have as his subject "The Cerebral Phenomena of Hypertension and Their Treatment." All members of the medical profession and their guests are invited to the dinner ($5 per person; dress optional) and the lecture. No reservations for the dinner will be accepted after Dec. 5. Mail checks to Dr. Royal A. Schaaf, Treasurer, 413 Mt. Prospect Ave., Newark.

NEW YORK

University News.—Albany Medical College of Union University announces the following promotions in its department of pediatrics: Dr. Edward S. Goodwin to clinical professor of pediatrics; Dr. Edward R. Schlesinger to assistant clinical professor of pediatrics; and Drs. Thomas F. Riedy Jr., Allan MacCollam, and John W. Abbuhl to instructor in pediatrics.

Report on Fluorine Study.—The New York Institute of Clinical Oral Pathology announces an open meeting to which members of the medical, dental, and allied professions are invited. The final report on the Newburgh-Kingston Caries Fluorine Study (Dec. 12, 8:30 p. m., at the New York Academy of Medicine Building, 2 E. 103rd St.) will include:

History of the Newburgh-Kingston Caries-Fluorine Study, Herman E. Hilleboe, Albany.
Pediatric Aspects, Edward R. Schlesinger, Albany.
Fluoride Metabolism, Harold C. Hodge, Ph.D., Rochester.
Dental Aspects, David B. Ast, D.D.S., Albany.

Named to Joint Post.—Dr. Jacob David Goldstein, associate professor in medicine and in bacteriology, University of Rochester School of Medicine and Dentistry, has been named to the joint post of professor of medicine at the State University of New York College of Medicine at New York City in Brooklyn and chief of medicine at the Jewish Hospital of Brooklyn. Dr. Goldstein served as director of laboratories at Genesee Hospital in Rochester from 1947 to 1951. During World War II he was a colonel in the Army Medical Corps, serving as chief of laboratory services for the 19th General Hospital in England and France.

New York City

Hauswirth Lecture.—The seventh annual Louis Hauswirth Lecture in Medicine, sponsored by the Beth David Hospital Alumni Association, will be delivered by Dr. Sidney C. Werner, associate professor of clinical medicine, chief of combined endocrine clinic, and associate attending physician, Presbyterian Hospital, Dec. 8, at 8:30 p. m. The lecture, "Selection of Therapy in Thyroid Diseases," will be held at Beth David Hospital, 161 E. 90th St.

Meeting on Preoperative Care.—The New York chapter of the International Academy of Proctology invites members of the medical profession to a meeting on the preoperative management of colonic surgery at 8:30 p. m., Dec. 6, at the Hotel Plaza (Fifth Avenue and 59th Street). The following papers will be presented:

Cardiorenal and Metabolic Factors, Paul H. Kuhn.
Fluid, Electrolyte, and Blood Constituent Balance, Kurt Lange.
Use of Antibiotics in Colonic Surgery, Russell F. Cahoon, Pearl River, N. Y.

Schoenberg Memorial Lecture.—The Mark J. Schoenberg Memorial Lecture, sponsored jointly by the National Society for the Prevention of Blindness and the New York Society for Clinical Ophthalmology, will be given Dec. 5, 8:15 p. m., at the New York Academy of Medicine. Dr. Irving H. Leopold, chairman, department of ophthalmology, Graduate School of Medicine, University of Pennsylvania, Philadelphia, will present "Advances in the Medical Treatment of Glaucoma." All physicians will be welcome.

Medical Lectures for the Public.—The New York Academy of Medicine, 2 E. 103rd St., is presenting as its 21st series of Lectures to the Laity "Medicine and Anthropology," with the support of the Wenner-Gren Foundation for Anthropological Research. The first lecture in the series, the Linsly R. Williams Memorial Lecture, "Man, Magic and Medicine," was delivered by Dr. Paul Fejos, president of the foundation, on Nov. 23. On Dec. 7 at 8:30 p. m. "The Ecology of Health" will be considered by Marston Bates, Ph.D., professor of zoology, University of Michigan, Ann Arbor.

Personal.—Dr. Leon Roizin has been appointed principal research scientist, neuropathology, at the New York State Psychiatric Institute to succeed Dr. Armando Ferraro, who retired last year.——Dr. I. Herbert Scheinberg has resigned as principal research scientist, internal medicine, at the New York State Psychiatric Institute to become associate professor of medicine at the Albert Einstein College of Medicine. Dr. Bernard C. Holland has been appointed to succeed Dr. Scheinberg at the institute.——Dr. Douglas Quick recently delivered the Herman L. Reiss Memorial Lecture on "Contributions of Radiation in the Treatment of Malignant Tumors of the Jaws," before the New York Institute of Clinical Oral Pathology.

Diarrheal Diseases of Infants.—A conference on diarrheal diseases of the infant will be presented Dec. 8-9 at the Barbizon-Plaza Hotel (101 W. 58th St., at 6th Avenue) under the sponsorship of the section of biology, New York Academy of Sciences (2 E. 63rd St.). Presentations by out-of-state speakers include:

Diarrheal Diseases of Man: A Historical Review and Global Appraisal, Albert V. Hardy, Jacksonville, Fla.
Host-Microbe Relationships, Walter J. Nungester, Ann Arbor, Mich.
Active and Passive Immunity of the Infant, Geoffrey Edsall, Washington, D. C.
Salmonellae and Salmonellosis, Philip R. Edwards, Ph.D., Chamblee, Ga.
An Epidemic of Salmonella Panama Infection in Infants, Frederick S. Leeder, Lansing, Mich.
Enteropathogenic Escherichia Coli, William H. Ewing Ph.D., Chamblee, Ga.
Infantile Diarrhea Due to Escherichia Coli, Cyril S. Stulberg and Wolf W. Zuelzer, Detroit.
Studies on Enteropathogenic Escherichia Coli, Col. Robert B. Lindberg, Ph.D., Washington, D. C.
Epidemiologic Studies of Enteropathogenic Escherichia Coli Diarrhea, Aaron H. Stock, Pittsburgh.
Spread and Control of Escherichia Coli Diarrheal Disease, Warren E. Wheeler, Columbus, Ohio.
Epidemic Diarrheal Disease of Suckling Mice, Francis S. Cheever, Pittsburgh.
Significance of Viruses Recovered from the Intestinal Tract of Healthy Infants and Children, Albert B. Sabin, Cincinnati.

OHIO

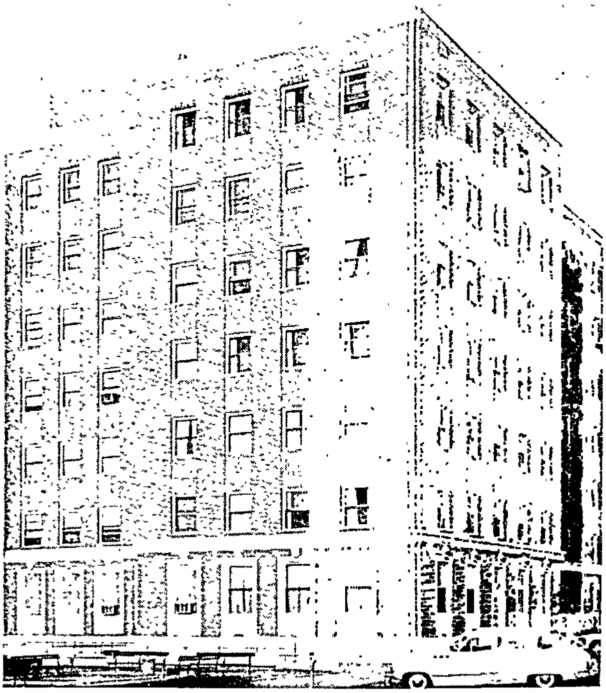
Society News.—The Academy of Medicine of Cincinnati (152 E. Fourth St.) will present "Some Recent Advances in Clinical Endocrinology" by Dr. E. Perry McCullagh, Cleveland, Dec. 6. ——Officers of the Cincinnati Otolaryngological Society include: Dr. Ervin S. Ross, president, and Dr. Joseph A. Lane, treasurer.

Memorial Postgraduate Day.—On Oct. 12 the active medical staff of Manfield General Hospital sponsored the first of a proposed annual "Dr. Harro Woltmann Postgraduate Day" as a memorial honoring Dr. Woltmann, a former staff member. The speakers were Dr. Harold J. Jeghers, Washington, D. C., and Drs. Harry Goldblatt, Stanley O. Hoerr, and Oscar D. Ratnoff, Cleveland.

TENNESSEE

Personal.—A portrait of Dr. R. Eustace Semmes, professor of neurological surgery, University of Tennessee College of Medicine, Memphis, was presented to the university by his former residents at the Baptist Memorial and John Gaston hospitals in Memphis. Presentation was made by Dr. Francis Murphey, Memphis, at a luncheon honoring Dr. Semmes.

Medical-Surgical Building.—The recently completed $731,033 Medical-Surgical Building of the University of Tennessee College of Medicine, Memphis, adds 40,000 square feet of floor space to Memphis' medical center. The first four floors of the seven-floor building, which connect with Gailor Memorial Psychiatric Hospital by corridors, will serve as the outpatient department of John Gaston Hospital. On the fifth floor will be a radioactive isotope clinic for study and treatment of selected diseases, an orthopedic clinic and cast room, and dermatology and hematology clinics. The sixth and seventh floors will be occupied by the west Tennessee laboratory of the state health department.


Medical-Surgical Building in Memphis.

VIRGINIA

Stuart McGuire Lecture.—Dr. Richard W. TeLinde, professor of gynecology, Johns Hopkins University School of Medicine, Baltimore, will deliver the annual Stuart McGuire Lecture on endometriosis at the Medical College of Virginia, Richmond, Dec. 7. He will also participate in the symposium Dec. 8-9, with Drs. John L. Parks, Robert H. Barter, and Andrew A. Marchetti, Washington, D. C.; Drs. F. Bayard Carter and Roy T. Parker, Durham, N. C.; Dr. Houston S. Everett, Baltimore; Dr. Frank R. Lock, Winston-Salem, N. C.; Drs. William N. Thornton Jr. and John M. Nokes, Charlottesville; and Erling S. Hegre, Ph.D., Richmond. All lectures will be in the Baruch Auditorium of the Egyptian Building at the college. There is no charge for the McGuire Lecture, but there will be a charge of $5 a day for the symposium lectures, except to members of the faculty of the college, the University of Virginia School of Medicine, Charlottesville, physicians of the McGuire Veterans Administration Hospital, medical students, and members of the house staff of any hospital.

WISCONSIN

Course in Cardiology.—The University of Wisconsin Medical School, Madison, offers a graduate course in cardiology Dec. 6-8. A panel discussion will conclude the Tuesday sessions. Ward rounds are scheduled for Wednesday and Thursday, 8 a. m. The sessions will end Thursday afternoon after a symposium on hypertension. Registration fee is $5; course fee, $15. Applications should be sent to Dr. Robert C. Parkin, University of Wisconsin Medical School, 418 N. Randall Ave., Madison 6.

Symposium on Metabolism.—The University of Wisconsin Medical School, Madison, presented a symposium, "Metabolic Aspects of Transport Across Cell Membranes," Aug. 29-31, with the cooperation of the Wisconsin Alumni Research Foundation and the National Science Foundation. Dr. F. E. Shideman, professor of pharmacology and toxicology, presided at a round-table discussion on "Transport of Organic Compounds Across Renal Epithelium." Dr. Q. R. Murphy, associate professor of physiology, was chairman of the committee in charge of arrangements for the symposium.

Program on Physical Diagnosis.—A postgraduate course on physical diagnosis is offered by Marquette University, Milwaukee, on Wednesdays, Dec. 7-Jan. 18, from 10 a. m. to noon. Cardiology I, Cardiology II, and Abdomen will be the subjects at Milwaukee County Hospital Dec. 7, 14, and 21 respectively. Musculoskeletal Diseases, Chest, and Neurology will be considered at the Veterans Administration Hospital, Wood, Jan. 4, 11, and 18, 1956, respectively. Dr. Joseph W. Rastetter, associate professor of medicine and assistant director of the department of medicine, will be the director of the course. Registration is limited to 30 persons. The Wisconsin Academy of General Practice is allotting 12 credits.

PUERTO RICO

Annual Medical Meeting in Santurce.—The 52nd annual assembly of the Puerto Rico Medical Association will convene in Santurce Dec. 6-10 under the presidency of Dr. Ricardo F. Fernández, Santurce. Dr. Elmer Hess, Erie, Pa., President of the American Medical Association, will deliver an address at the opening meeting Tuesday, 8 p. m., at the Hotel Caribe Hilton. He will also speak Wednesday, 9:30 p. m., at the association headquarters, Avenida Fernandez Juncos-Parada 19, his topic being "The General Practitioner as an Urologist." The other guests of honor and their first presentations include:

Jerome W. Conn, Ann Arbor, Mich., Clinical Implications of Aldosterone, the Newly Recognized Adrenal Steroid.
Bernard J. Alpers, Philadelphia, The Problems of Cerebral Aneurysm.
William F. Finn, New York City, Induction and Stimulation of Labor.
John H. Garlock, New York City, Surgical Treatment of Cancer of the Esophagus and Cardia with an Appraisal of Long Term Results.
Arnold R. Rich, Baltimore, Studies on the Pathogenesis of Cirrhosis of the Liver.
Rufus H. Alldredge, New Orleans, Cineplastic Method for Upper Extremity Amputation (illustrated by motion picture).

A symposium on anemias in Puerto Rico is scheduled at the school of medicine at 2:30 p. m. Wednesday. Thursday morning will be devoted to the Capital Hospitals. The session will begin with ward rounds in all services at 8:30 a. m. and conclude at 11 a. m. with a clinical pathological conference. A similar morning will be spent Friday at the Hospital San Patricio. The session at the association headquarters Friday afternoon will open with a symposium on breast cancer. The presidential reception is scheduled for Tuesday night, after the address by Dr. Hess, and the annual banquet for Saturday at the Caparra Country Club.

GENERAL

Meeting on Rheumatism.—The second interim scientific session of the American Rheumatism Association will convene Dec. 9 at the Clinical Center, National Institutes of Health, Bethesda, Md. Eighteen papers will be presented. A tour of the laboratories is scheduled for Friday afternoon. Dr. Charles L. Short, Boston, is president of the association.

Meeting on Epilepsy.—The American League Against Epilepsy will hold its annual meeting Dec. 8 at the Roosevelt Hotel, New York City. The morning session will be devoted to a symposium on advances in medical therapy, for which Dr. William G. Lennox, Boston, will serve as chairman, and at 9 a. m. will deliver opening remarks on the WHO Conference on Epilepsy. The afternoon session will open with the presidential address by Dr. Russell N. DeJong, Ann Arbor, Mich. In all, 17 presentations have been scheduled.

Semmelweis Lecture.—At the annual Semmelweis meeting of the American-Hungarian Medical Association Dec. 9 at the Hosack Hall of the New York Academy of Medicine, Dr. Hans Selye, director of the Institute for Experimental Medicine and

Surgery, Montreal, Canada, will deliver the Semmelweis Lecture, "Recent Progress in the Study of Stress." Dr. Selye will be presented with the Ignatz Semmelweis medal, awarded annually by the American-Hungarian Medical Association to an outstanding scientist of Hungarian origin. Preceding the meeting he will be feted at a dinner in the Presidents Gallery of the New York Academy of Medicine.

Teaching Legal Medicine in Law Schools.—The Association of American Law Schools will hold a meeting at the Conrad Hilton Hotel, Chicago, Dec. 28-30, at which there will be a round-table council on law and psychology to discuss the teaching of legal medicine in the law schools of the United States. Dr. Robert N. Hamlin is scheduled to present the program in legal medicine as it is taught at Harvard Law School, Cambridge, Mass., and Professor L. Whiting Farinholt Jr., of the University of Maryland, Baltimore, Professor Polsky of Temple University, Philadelphia, and Mr. Oliver Schroeder Jr. of Western Reserve University, Cleveland, will discuss the programs in their respective schools.

Lalor Foundation Awards.—The Lalor Foundation will offer 40 awards in its 1956 series of summer awards for research in the biological sciences. These awards, available to members of college and university faculties (age limit, 40 years), are for advanced study and research employing chemistry or physics to attack problems in any field of biology. The awards will usually not exceed $900 for a single man or woman, $1,100 for a married person working at his home institution, and $1,200 for a married person whose principal program is at another institution. Inquiries should be addressed to the Director of the Lalor Foundation, 4400 Lancaster Pike, Wilmington 5, Del. Final date for receipt of completed applications is Jan. 14, 1956.

Radiologists Meet in Chicago.—The Radiological Society of North America will hold its 41st annual meeting at the Palmer House, Chicago, Dec. 12-16. The presidential address by Dr. Thomas B. Bond, Fort Worth, Texas, will precede "College Report on Present Status of Blue Cross and Blue Shield" by Dr. Warren W. Furey, Chicago, and "Radiation Control Legislation" by Lauriston S. Taylor, A.B., Washington, D. C. Panels are scheduled on hemoptysis (Dr. Raymond R. Lanier, Chicago, moderator), curative treatment of cancer of the breast (Dr. Donald S. Childs Jr., Rochester, Minn., moderator), and the acute abdomen (Dr. Philip J. Hodes, Philadelphia, moderator). Dr. James W. J. Carpender, Chicago, will serve as moderator for a symposium on supervoltage. The annual banquet is scheduled for 8 p. m. Thursday.

Annual Meeting on Nervous and Mental Disease.—The Association for Research in Nervous and Mental Disease will hold its 35th annual meeting at the Hotel Roosevelt, New York City, Dec. 9-10. The subject, "The Neurologic and Psychiatric Aspects of the Disorders of Aging," will be developed in 14 presentations preceding the Saturday afternoon panel discussion, "The Physician's Contribution to the Role of Older Persons in Society" (chairman, Dr. D. Ewen Cameron, Montreal, Canada), which will include:

Acute Breakdowns, Eugene Meyer, Baltimore.
Retirement, James S. Tyhurst, Montreal, Canada.
Retirement, with Special Emphasis on Retirement Plans, Mr. D. S. Sargent, New York.
General Advice by the Physician, David Seegal, New York.
Effects of Cultural Anticipations and Attitudes Toward Aging, Margaret Mead, Ph.D., New York.
Psychotherapy of the Aged Person, Jack Weinberg, Chicago.
Rehabilitation of the Aged, Frederic D. Zeman, New York.

Muscular Dystrophy Projects.—Muscular Dystrophy Associations of America, Inc., 39 Broadway, New York 6, N. Y., recently allocated $175,642 for continuation of 13 research projects and for 6 new scientific projects. The association, with its more than 200 chapters throughout the country, issued a call for 500,000 volunteers to join the 1955 March for Muscular Dystrophy during Thanksgiving Week to raise funds for continued research, patient care, and a constantly expanding network of clinics nationwide. The association's program of research includes construction of a muscle research center in New York City, adjacent to and allied with New York Hospital-Cornell Medical Center. Two million dollars has been earmarked for the start of the project, which will be specially staffed and equipped, with provision for 50 laboratories, and will serve as a clearing house for research information.

Pharmaceutical Manufacturers' Award Dinner.—The American Pharmaceutical Manufacturers' Association has scheduled its annual award dinner at the Waldorf-Astoria, New York City, Dec. 13, in connection with its combined midyear and eastern section meeting, Dec. 12-14. The association's 17th annual award will be bestowed on Dr. Charles W. Mayo, Rochester, Minn., for "providing a new therapeutic formula to aid international understanding in a politically sick world." Dr. Mayo first took an active role in world political affairs in 1953 as a member of the U. S. delegation to the General Assembly of the United Nations. The following year he was elected president of the American Association for the United Nations. At the scientific sessions Dr. Morris Fishbein, Chicago, will speak on uniform procedures for product registration and labeling in Latin America. His presentation will include information on the recent conference of the Pan American Medical Confederation in Bogota, Colombia. During the medical and scientific session Tuesday afternoon, drug therapy in mental disease will be discussed by Dr. Baldwin L. Keyes, Philadelphia, Dr. Francis J. O'Neill, Central Islip, N. Y., and Dr. Howard D. Fabing, Cincinnati. The meetings will end with a luncheon at 12:30 p. m. Wednesday. The registration fee ($15) includes a ticket for the luncheon; extra tickets are available at $7.50.

Society News.—Dr. Howard A. Rusk, president, **International Society for the Welfare of Cripples,** announces the appointment of Hendrik Nieuwenhuize, M.A., of Amsterdam, The Netherlands, to the staff of the society. Before coming to New York, Mr. Nieuwenhuize served as secretary-general of the Netherlands National Federation for Mental Health.——The **National Multiple Sclerosis Society** has appointed as scientific director Frederick L. Stone, Ph.D., assistant for professional services to the vice-chancellor, School of the Health Professions, University of Pittsburgh. Dr. Stone's responsibility will be to develop research and medical programs and to administer all research grants and fellowships.——Newly elected officers of the **Academy of Psychosomatic Medicine** include: Dr. Alfred J. Cantor, Flushing, N. Y., president; Dr. Samuel M. Poindexter, Boise, Idaho, president-elect; Dr. Harry Phillips, East St. Louis, Ill., first vice-president; Dr. Carlos Seguin, Lima, Peru, second vice-president; Dr. Ethan Allan Brown, Boston, secretary; and Dr. George F. Sutherland, Baltimore, treasurer.——Newly elected officers of the **American Roentgen Ray Society** include: Dr. Paul C. Hodges, Chicago, president; Dr. W. Edward Chamberlain, Philadelphia, president-elect; Dr. Milo T. Harris, Spokane, Wash., first vice-president; Dr. John P. Medelman, White Bear Lake, Minn., second vice-president; Dr. Barton R. Young, Philadelphia, secretary; and Dr. Wendell G. Scott, Clayton, Mo., treasurer.

Resident Exchange Program and the Horse Shoe Club.—The American College of Surgeons announces a program of exchange of surgical residents between this country and Great Britain, under the sponsorship of the Horse Shoe Club. Arrangements for the exchange will be accomplished by the graduate training committee of the American College of Surgeons in this country. The original plans call for an exchange of about one year's duration, the American resident usually being at the second or third year level. Those coming from Great Britain may be somewhat further along in their training programs but will be fitted into the American residency so as to provide the best opportunity for training and experience. The host institution is expected to provide for the living expenses of the visiting students, but the travel expense is to be borne by the parent hospital. The Horse Shoe Club, composed of British, Canadian, and American members, was founded in 1932 to foster friendship and the exchange of medical, research, and clinical workers between the three countries. In Great Britain, the club offers hospitality to visitors from the United States and Canada and assists in making arrangements for visits to British hospitals. This exchange program does not interfere in any way with exchange programs that now exist or that may be established. Private arrangements made between schools and hospitals in both countries are all important, and it is hoped that they will be amplified. Those responsible for approved programs of training in general surgery and the surgical specialties in this country are invited to participate in the exchange program. Inquiries should be addressed to the American College of Surgeons, 40 E. Erie St., Chicago 11.

Meeting on Medical Education and Industry.—A conference on the education of physicians for industry will be held at the Mellon Institute, Pittsburgh, Dec. 6-8 under the sponsorship of the National Fund for Medical Education, the Association of American Medical Colleges, and the A. M. A. Council on Industrial Health and Council on Medical Education and Hospitals. Dr. Robert A. Kehoe, Cincinnati, conference chairman, will preside at the opening session Tuesday morning, at which the address of welcome by Dr. Edward R. Weidlein, Pittsburgh, president of the institute, will be followed by a seminar, "Responsibilities of Society for Health in Our Industrial World." Dr. Norvin C. Kiefer, New York City, chief medical director, Equitable Life Assurance Society of the United States, will outline "Needs and Problems." The problems of industrial health will be considered by Mr. William Seymour, senior vice-president, *Liberty Mutual Insurance Company, for the industrialist;* Dr. Leo Wade, New York City, medical director, Esso Standard Oil Company, for the medical administrator; and Clinton S. Golden, LL.D., Boston, former executive director, Trade Union Program, Graduate School of Business Administration, Harvard University, for the industrial worker. The seminar will be followed by panel sessions. Dr. Ward Darley, Denver, president, University of Colorado, will address the dinner meeting at 6:45 p. m., his subject being "The Widening Horizons of Medical Education." Panel sessions will be continued Wednesday. Thursday morning Dr. Vernon W. Lippard, New Haven, Conn., president, Association of American Medical Colleges, will give the summation and comment. Thursday afternoon will be devoted to a symposium on medical education and industry, with Mr. S. Sloan Colt, New York City, president, National Fund for Medical Education, presiding. The address of welcome by General Matthew B. Ridgeway, Washington, D. C., chairman, Mellon Institute, will precede the symposium:

Robert A. Moore, Pittsburgh, Medicine Tomorrow.
Mr. Harry W. Anderson, Medicine and Manpower.
Mr. M. J. Rathbone, Our Debt to Medical Science.
Mr. Clifford F. Hood, Industry's Stake in Rising Health Standards.

LATIN AMERICA

Congress of Pathologic Anatomy.—The first Latin-American Congress of Pathologic Anatomy will be held in Mexico City, Dec. 11-17, under the auspices of the president of Mexico, the secretariat of public health, and the Mexican Association of Pathologists, with the collaboration of the UNESCO Center of Scientific Cooperation for Latin America. Dr. Isaac Costero will be the president of the congress. Spanish, Portuguese, and English will be the official languages for official topics, lectures, and round-table discussions. The registration fee is about $16. Information can be obtained from: Instituto Nacional de Cardiologia, Avenida Cuahtemoc 300, Mexico, 7, D. F., Mexico.

DEATHS IN OTHER COUNTRIES

Dr. med. Karl Haedenkamp, who had long been active in the Association of German Physicians, died July 13 in Garmisch-Partenkirchen, Germany, after a brief illness. Dr. Haedenkamp had been awarded medals by the government of the West German Republic and the Paracelsus medal of the Society of German Physicians.

Dr. Ghulam Muhammad Khan Baloch, M.D. (Pb.) M.R.C.P. (London), professor of medicine in Fatima Jinnah Medical College, Lahore, West Pakistan, died April 23 after a prolonged illness. Dr. Baloch, a graduate of the University of the Punjab, was previously affiliated with the Department of Medicine, King Edward Medical College, Lahore. He was treasurer of the Pakistan Association for the Advancement of Science and of the Pakistan Science Conference 1953 (Medical Section), and served as secretary of the Pakistan Medical Association, Punjab Branch.

CORRECTION

American Diabetes Association.—In the Medical News, page 1131 of the Nov. 12, 1955, issue of The Journal, Dr. Henry Ricketts was referred to as "former president of the American Diabetes Association." Dr. Ricketts is currently president of the association.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1956 Annual Meeting, Chicago, June 11-15.
1956 Clinical Meeting, Seattle, Nov. 27-30.
1957 Annual Meeting, New York, June 3-7.
1957 Clinical Meeting, Philadelphia, Dec. 3-6.

Annual Congress on Industrial Health, Sheraton-Cadillac Hotel, Detroit, Jan. 25-24. Mr. Clark D. Bridges, 535 N. Dearborn St., Chicago 10, Acting Secretary.

American Academy of Dermatology and Syphilology, Palmer House, Chicago, Dec. 3-8. Dr. James R. Webster, 55 East Washington St., Chicago 2, Secretary.

American Academy of Obstetrics and Gynecology, Conrad Hilton Hotel, Chicago, Dec. 13. Dr. C. Paul Hodgkinson, 116 South Michigan Blvd., Chicago, Secretary.

American League Against Epilepsy, Roosevelt Hotel, New York, Dec. 8. Dr. Peter Kellaway, Baylor University College of Medicine, Houston 25, Tex., Secretary.

American Rheumatism Association, Interim Session, National Institutes of Health, Bethesda, Md., Dec. 9. Dr. Edward F. Hartung, 580 Park Ave., New York 21, Secretary.

Association for Research in Nervous and Mental Diseases, Hotel Roosevelt, New York, Dec. 9-10. Dr. Clarence C. Hare, 710 West 168th St., New York 32, Secretary.

Eastern Section, American Laryngological, Rhinological and Otological Society, Boston, Jan. 13. Dr. John A. Murtagh, Dartmouth College, Hanover, N. H., Vice President.

Los Angeles Midwinter Medical Convention, Biltmore Hotel, Los Angeles, Jan. 3-5. Dr. Paul D. Foster, 1925 Wilshire Blvd., Los Angeles 58, General Chairman.

Middle Section, American Laryngological, Rhinological and Otological Society, Netherland Plaza, Cincinnati, Jan. 16. Dr. William H. Craddock, 2328 Auburn Ave., Cincinnati 19, Vice President.

Puerto Rico Medical Association, Santurce, Dec. 7-11. Dr. Luis R. Guzman-Lopez, Box 9111, Santurce, Secretary.

Radiological Society of North America, Palmer House, Chicago, Dec. 11-16. Dr. Donald S. Childs. 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

Regional Meetings, American College of Physicians:

Winston-Salem, N. C., Dec. 8. Dr. Elbert Persons, Duke Hospital, Durham, N. C., Governor.

Shreveport, La., Jan. 14, Dr. M. D. Hargrove, 803 Jordan St., Shreveport, La., Governor.

Philadelphia, Jan. 20. Dr. Thomas M. McMillan, 330 South 9th St., Philadelphia 7, Governor.

Sectional Meetings, American College of Surgeons:

Jacksonville, Fla., Hotel George Washington, Jan. 16-18. Dr. Kenneth A. Morris, 2522 Oak St., Jacksonville 4, Fla., Chairman.

Southern Section, American Federation for Clinical Research, Jung Hotel, New Orleans, Jan. 20. Dr. John H. Moyer, 1200 M.D. Anderson Blvd., Houston, Tex., Secretary.

Southern Section, American Laryngological, Rhinological and Otological Society, The Shamrock, Houston, Texas, Jan. 27-28. Dr. J. M. Robison, 1304 Walker Ave., Houston 2, Texas, Chairman.

Southern Surgical Association, The Homestead, Hot Springs, Va., Dec. 6-8. Dr. George G. Finney, 2947 St. Paul St., Baltimore 18, Secretary.

Southern Thoracic Surgical Association, The Greenbrier, White Sulphur Springs, W. Va., Dec. 2-5. Dr. Hawley H. Seiler, 442 West Lafayette St., Tampa 6, Fla.

Western Section, American Federation for Clinical Research, La Playa Hotel and Golden Bough Theater, Carmel, Calif., Jan. 25. Dr. B. H. Scribner, Veterans Administration Hospital, Seattle 8, Washington, Secretary.

Western Section, American Laryngological, Rhinological and Otological Society, County Medical Society Bldg., San Francisco, Jan. 21. Dr. David D. DeWeese, 1216 S. W. Yamhill St., Portland, Ore., Vice President.

FOREIGN AND INTERNATIONAL

All India Medical Conference, Jaipur, India, Dec. 26-28. Dr. B. N. Consul, Association Bldg., S.M.S. Hospital Premises, Jaipur, India, Organizing Secretary.

Canadian Medical Association, Quebec, P. Q., Canada, June 10-14, 1956. Dr. Arthur D. Kelly, 150 St. George St., Toronto 5, Ont., Canada, Secretary.

Conference of International Union for Health Education of the Public, Rome, Italy, Apr. 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1^{er}, France, Secretary-General.

Congress of International Anesthesia Research Society, Miami Beach, Fla., U.S.A., April 9-12, 1956. *For information write:* Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Somerset, Boston, Mass., U.S.A., Aug. 27-Sept. 1, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, Sept. 12-15, 1956. Prof. Umberto Serafini, Instituto de Patologia Medica, Viale Morgagni, Florence, Italy, Secretary-General.

European Congress of Cardiology, Stockholm, Sweden, Sept. 10-14, 1956. Dr. Karl Erik Grewin, Sodersjukhuset, Stockholm, Sweden, General Secretary.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik. Hamburg-Eppendorf, Germany.

Inter-American Congress of Cardiology, Havana, Cuba, Nov. 4-10, 1956. For information address: Dr. Ramon Aixala, Apartado 2108, Havana, Cuba.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Congress Against Alcoholism, Istanbul, Turkey, Sept. 10-15, 1956. For information address: International contre l'Alcoolisme, Case Gare 49, Lausanne, *Switzerland.*

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress of Blood Transfusion, Boston, Mass., U. S. A., Aug. 29-Sept. 2, 1956. Dr. J. Julliard, 57, Boulevard L'Auteuil, Boulonge-sur-Seine, France, Secretary General.

International Congress on Diseases of the Chest, Cologne, Germany, Aug. 19-23, 1956. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, U. S. A., Executive Director.

International Congress of Entomology, Montreal, Canada, Aug. 17-25, 1956. Mr. J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ont., Canada, Secretary.

International Congress of Gastroenterology, London, England, July 18-21, 1956. Mr. Hermon Taylor, London Hospital, White Chapel, London E.1, England, Honorable Secretary.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Human Genetics, Copenhagen, Denmark, Aug. 1-6, 1956. For information address: The University Institute for Human Genetics, Tagensvej 14, Copenhagen N, Denmark.

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Palmer House, Chicago, Illinois, U. S. A., Sept. 9-13, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Dr. Valente, 41 Avenue Verdi, Montecatini Terme, Italy, Secretary-General.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Physiopathology of Animal Reproduction and Artificial Insemination, Cambridge, England, June 25-29, 1956. For information address: Dr. Joseph Edwards, Production Division, Milk Marketing Board, Thames Ditton, Surrey, England.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for Physical Therapy, Hotel Statler, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International Genetics Symposium, Tokyo and Kyoto, Japan, Sept. 6-12, 1956. For information address: Secretary, International Genetics Symposium, Science Council of Japan, Ueno Park, Tokyo, Japan.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

Latin American Congress of Pathology, Mexico, D. F., Mexico, Dec. 11-17. For information address: Laboratorio de Anatomia Patologica, Instituto N. de Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F., Mexico.

Latin American Congress of Physical Medicine, San Juan, Puerto Rico and Curacao, N.W.1., Jan. 29-Feb. 8, 1956. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York 21, New York, U. S. A., Executive Director.

Medical Women's International Association, Extraordinary General Assembly, Burgenstock, Nidwalden, Switzerland, Sept. 21-23, 1956. Dr. Janet Aitken, 30a Acacia Road, London N.W. 1, England, Secretary.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P.O Box 672, Cairns, N.Q., Australia, Secretary.

Pan-American Academy of General Practice, San Juan, Puerto Rico and Curacao, N.W.1., Jan. 29-Feb. 8, 1956. Dr. Arturo Martinez, 54 East 72d St., New York 21, New York, U. S. A., Secretary.

Pan American Congress of Gastroenterology, Havana, Cuba, Jan. 20-27, 1956. For information address: Dr. Norberto M. Stapler, 1267 J. E. Uriburu, Buenos Aires, Argentine, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A , Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, San Juan, Puerto Rico, April 8-12, 1956. Dr. C. E. Munoz MacCormick, Apartado 9111, Santurce 29, Puerto Rico, Secretary General.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

World Medical Association, Havana, Cuba, Oct. 9-15, 1956. Dr. Louis H. Bauer, 345 East 46th St., New York 17, New York, U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: Various Centers. April 24-25 (Part II); June 19-20 (Parts I and II); September 4-5 (Part I). Candidates may file applications at any time but they must be received at least six weeks before the date of the examination for which application *is made. New candidates should apply by formal registration;* registered candidates may notify the board, indicating desired location, date and candidate number. Ex. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 19-21. Sec., Dr. D. G. Gill, State Office Bldg., Montgomery.

Arizona:* *Examination.* Phoenix, Jan. 18-19. *Reciprocity.* Phoenix, Jan. 21. Sec., Dr. M. R. Richter, 411 Security Bldg., Phoenix.

Delaware: *Examination.* Dover, Jan. 10-12. *Reciprocity.* Dover, Jan. 19. *Sec., Dr. Joseph S. McDaniel, Dover.*

District of Columbia:* *Reciprocity.* Washington, Dec. 12. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave. N.W., Washington 6.

Georgia: *Examination and Reciprocity*. Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Idaho: *Examination and Reciprocity*. Boise, Jan. 9-11. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Illinois: *Examination and Reciprocity*. Chicago, Jan. 24-26. Supt. of Regis., Mr. Frederic B. Selcke, Capitol Building, Springfield.

Indiana: *Examination*. Indianapolis, June. Exec. Sec., Miss Ruth V. Kirk, 538 K. of P. Bldg., Indianapolis.

Maryland: *Examination*. Baltimore, Dec. 13-16. Exec. Sec., Miss Hannah A. McCarthy, 1215 Cathedral St., Baltimore 1.

Michigan:* *Examination*. Ann Arbor and Detroit, June 13-15 (Tentative). Sec., Dr. E. C. Swanson, 118 Stevens T. Mason Bldg., Lansing.

Minnesota:* *Examination*. Minneapolis, Jan. 18-20. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: *Reciprocity*. Jackson, December. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Montana: *Examination and Reciprocity*. Helena, April 3-4. Sec., Dr. S. A. Cooney, 7 West 6th Ave., Helena.

Nebraska:* *Examination*. Omaha, June 18-20. Director, Bureau of Examining Boards, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada:* *Examination and Reciprocity*. Reno, Jan. 3. Sec., Dr. G. H. Ross, 112 N. Curry St., Carson City.

New Hampshire: *Examination and Endorsement*. Concord, March 14. Sec., Dr. John S. Wheeler, 107 State House, Concord.

New York: *Examination*. Albany, Buffalo, Syracuse and New York, Feb. 7-10. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany.

North Carolina: *Reciprocity*. Durham, Jan. 16. Sec., Dr. Joseph J. Combs, Professional Bldg., Raleigh.

North Dakota: *Examination*. Grand Forks, Jan. 4-6. *Reciprocity*. Grand Forks, Jan. 7. Sec., Dr. C. J. Glaspel, Box 228, Grafton.

Ohio: *Examination*. Columbus, Dec. 15-17. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oklahoma:* *Examination*. Oklahoma City, June 5-6. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

Oregon:* *Examination*. Portland, Jan. 12-14. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

Pennsylvania: *Examination*. Philadelphia, January. Acting Sec., Miss Marguerite G. Steiner, Box 911, Harrisburg.

Rhode Island:* *Examination*. Providence, Jan. 5-6. Admin. of Professional Education, Mr. Thomas B. Casey, Room 366, State Office Bldg., Providence 2.

South Dakota:* *Examination*. Sioux Falls, Jan. 17-18. Exec. Sec, Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Tennessee:* *Examination*. Memphis, Dec. 21-22. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

Washington:* *Examination*. Seattle, Jan. 9-11. *Reciprocity*. Seattle, Jan. 8. Secretary, Department of Licenses, Mr. Edward C. Dohm, Olympia.

West Virginia: *Examination and Reciprocity*. Charleston, Jan. 9-11. Sec., Dr. Newman H. Dyer, State Office Bldg., No. 3, Charleston 5.

Wisconsin:* *Reciprocity and Examination*. Madison, Jan. 10-12; *Reciprocity*, Madison, Spring; *Reciprocity and Examination*. Milwaukee, July 10-12. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., Madison.

Wyoming: *Examination and Endorsement*. Cheyenne, Feb. 6. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

Alaska:* On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Sec., Dr. John E. Kennedy, Agana.

Hawaii: *Examination*. Honolulu, Jan. 9-12. Sec., Dr. I. L. Tilden, 1020 Kapiolani, St., Honolulu.

Puerto Rico: *Examination*. San Juan, Mar. 6-11. Sec., Dr. Joaquin Mercado Cruz, Box 3271, San Juan.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arizona: *Examination and Reciprocity*. Tucson, Dec. 20. Sec., Dr. H. D. Rhodes, University of Arizona, Tucson.

Arkansas: *Examination*. Little Rock, May 4-5. Sec., Mr. S. C. Dellinger, Zoology Department, University of Arkansas, Fayetteville.

District of Columbia: *Examination*. Washington, April 23-24. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave. N.W., Washington 6.

Iowa: *Examination*. Des Moines, Jan. 10. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination*. Detroit and Ann Arbor, Feb. 10-11. Sec., Mrs. Anne Baker, 410 W. Michigan Ave., Lansing 15.

Minnesota: *Examination*. Minneapolis, Jan. 3-4. Sec., Dr. Raymond N. Bieter, 126 Millard Hall, University of Minnesota, Minneapolis.

Nebraska: *Examination*. Omaha, Jan. 10-11. Sec., Mr. Husted K. Watson, Room 1009, State Capitol Bldg., Lincoln 9.

Nevada: *Examination*. Reno, Jan. 3. Sec., Dr. Donald G. Cooney, Box 9005, University Station, Reno.

New Mexico: *Examination*. Santa Fe, Jan. 15. Sec., Mrs. Marguerite Cantrell, Box 1522, Santa Fe.

Oklahoma: *Examination*. Oklahoma City, Mar. 30-31. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

Oregon: *Examination*. Portland, Dec. 3; March 3; June 2, Sept. 8 and Dec. 1. Dr. Earl M. Pallett, Sec., State Board of Higher Education, Eugene.

Tennessee: *Examination*. Memphis, Dec. 30-31. Sec., Mr. O. W. Hyman, 62 S. Dunlap St., Memphis 3.

Texas: *Examination*. Galveston, Dallas, and such other locations as are warranted, April. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

Washington: *Examination*. Seattle, Jan. 4-5. Secretary, Department of Licenses, Mr. Edward C. Dohm, Olympia.

Wisconsin: Madison, Apr. 7. Final date for filing application is Mar. 30. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

Alaska: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity*. On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

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*Basic Science Certificate required.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of The Journal. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, Dec. 12

NBC-TV, 11 a. m.-12 noon EST. "Medical and Health News with Howard Whitman," a segment of the "Home" show.

ABC-TV, 9:30 p. m. EST. "Medical Horizons" deals with industrial medicine, especially emphasizing the effects of noise on hearing, in a program from the Institute of Industrial Health, University of Michigan Medical Center, Ann Arbor. Presented in cooperation with the American Medical Association.

Tuesday, Dec. 13

ABC-TV, 9:30 p. m. EST. "Dupont Cavalcade Theater" presents "Doctor on Wheels," the story of medical student who becomes a polio victim. Dr. Paul O. Shearer completes his education at the College of Medical Evangelists in a wheel chair and goes into internship in Glendale, Calif.

MAGAZINES

Saturday Evening Post, Dec. 3, 1955

"The Men with Deadly Dreams," by Nils P. Larson, M.D.

From Hawaii a doctor reports on one of the most puzzling mysteries known to medical scientists. Men go to bed in sound health and dream themselves to death.

Parents' Magazine, December, 1955

"What to Do If You Are All Tired Out," by Elizabeth George Speare

This article directed at mothers quotes the president of the Connecticut Heart Association as saying "patients seeking an explanation for fatigue comprise a large part of a physician's practice." The author suggests self-analysis to determine what is causing the fatigue and lists "practical measures" to relieve it.

"How to Stop Baby Feeding Problems Before They Start," by Ruth Newburn Sedam

Pediatricians Dr. Preston A. McLendon, George Washington University Hospital, and Dr. Otto Faust, Albany Hospital, give advice on infant feeding problems.

GOVERNMENT SERVICES

AIR FORCE

Colonel Byrnes Wins Award.—Col. Victor A. Byrnes, M. C., of the Air Force, was presented with the Gorgas medal, Nov. 9, at the military surgeons meeting in Washington for his work in retinal burns due to atomic explosions. The award consists of a silver medal, scroll, and an honorarium of $500. Colonel Byrnes is a flight surgeon and a graduate of the Army Command and General Staff School. At present he is director of professional services, surgeon general's office, Washington, D. C.

NAVY

Committee on Hearing and Bioacoustics.—The armed forces are confronted today with many problems on hearing and bioacoustics that are peculiar to the services. The armed forces-national research council committee on hearing and bioacoustics was organized to provide advice on these unique service problems: effects and control of noise, auditory discrimination, speech, communication, the fundamental mechanism of hearing, and auditory standards. The full committee of about 80 members comprises representatives from the armed forces and civilians appointed by the national research council. The latter group includes engineers and scientists in the fields of acoustics, vibrations, psychology, physiology, and medicine. The British and Canadian governments are represented also. Capt. C. P. Phoebus, M. C., U. S. Navy, was elected chairman of the committee at a meeting of the executive council in Washington on Oct. 24. Dr. Phoebus, a special assistant for biosciences in the office of naval research, succeeds Dr. R. H. Bolt, chairman since the committee was organized in 1953, who is with the acoustics laboratory of the Massachusetts Institute of Technology at Cambridge, Mass.

Reserve Officer Schools.—About 72 Naval Reserve officer schools are located throughout all continental naval districts. The courses available to medical department officers are military justice (2 semesters); personnel administration (1 semester); leadership (1 semester); and administration and education and training (2 semesters). Enrollment is open to any inactive duty Naval Reserve officer in good standing in the Naval Reserve.

This program, which is essentially nonpay, is administered on the basis of an academic year of two semesters, with classes held during September through June. Twenty drills a semester are scheduled, and each officer must attend a minimum of 80% of the periods of instruction and pass examinations given periodically and at the end of the course to complete the course satisfactorily. Promotion and retirement points are credited. Fourteen days active duty for training with pay is available each year to all officers who are enrolled in Naval Reserve officer schools.

PUBLIC HEALTH SERVICE

Dr. Vonderlehr Retires.—Dr. Raymond A. Vonderlehr, medical director of the region four office, U. S. Department of Health, Education, and Welfare, at Atlanta, Ga., retired from active government service Nov. 1 and will be succeeded in that assignment by Dr. W. H. Aufranc. Dr. Vonderlehr, a commissioned officer of the Public Health Service for 30 years, served for five years as medical director in charge of the service's communicable disease center in Atlanta, Ga. Formerly he was assistant surgeon general and chief of the division of venereal disease and quarantine officer for the United States at ports in Europe and the British Isles. He is the co-author of two books: "Plain Words About Venereal Diseases," and "The Control of V. D."

Professor Barany to Lecture.—Prof. Ernst H. Barany of the University of Upsala, Sweden, will lecture Dec. 8, 1955, at the National Institutes of Health, Bethesda, Md. As guest of the Ophthalmology Branch, National Institute of Neurological Diseases and Blindness, he will speak on "Factors Controlling the Resistance to Flow Through the Chamber Angle." All interested persons are invited to attend at 8 p. m. in room 10-N-114, clinical center.

VETERANS ADMINISTRATION

Special Treatment Program for Long-Term Patients.—Long-term veteran patients, some hospitalized 20 years or more, will be concentrated in special sections of Veterans Administration hospitals for a new program of specialized treatment to promote their recovery. The intermediate program, as it is known, is underway in 30 VA hospitals and will be expanded to others as rapidly as they qualify. The objective is to provide active rather than custodial care for those long-term patients in the VA hospital system who no longer need definitive hospital treatment, cannot return home, and lack the capabilities necessary for the new planned-living program in VA domiciliaries.

Specially qualified staffs are required to man these sections. For each long-term patient, a maintenance rehabilitation program will be instituted immediately to retain the benefits of hospital care already given and to prevent the development of disabilities resulting from physical inactivity. Moreover, the section staff will gear a planned activity program to each patient's capacity and need for recreational, spiritual, and social activities. Dr. William S. Middleton, chief medical director, said periodic reviews will be made of each patient's rehabilitation progress with the objective of planning for his discharge when indicated.

The program first underwent extensive tests in five combination hospital and domiciliary centers. When these tests proved successful, the program was expanded to the 30 hospitals now using it. A study recently completed indicates that 4,282 long-term patients in VA hospitals already meet the criteria for admission to these specialized sections in general medical and surgical hospitals and that 3,917 domiciliary members also are eligible and would be benefited by the increased medical care afforded in such sections.

The problem of caring for the aging and chronically ill patients in VA hospitals has been under special study for several years, and the current program has resulted from these studies. The need to develop long-range plans to cope with this problem is inherent in the present veteran population of 22,000,000, according to Dr. Middleton, since a considerable number will eventually require long-term hospital care. He said 584,000 veterans now are 65 years of age, but only five years hence the number is expected to exceed 1,780,000.

The average age of the 110,000 veterans in VA hospitals is 48, in comparison with the average of 38 years for the veteran population as a whole. About 10,000 VA patients are over 65. About 34,000 of VA's current load of 110,000 patients have been hospitalized for more than five years, with some 9,000 of the 34,000 having been hospitalized for 20 years or more. Because of this existing load, Dr. Middleton said the intermediate program for the present will be primarily restricted to patients and domiciliary members already in the VA hospital and domiciliary system.

Hospital News.—Dr. Thomas A. C. Rennie, New York City, addressed the staff of the VA Hospital at Northport, L. I., New York, Nov. 3 on "The Emergence of Social Psychiatry as a New Branch of Psychiatry: Theory and Research Findings."

DEATHS

Bohan, Peter Thomas ⊕ Kansas City, Mo.; born in Seaton, Ill., Jan. 16, 1874; Rush Medical College, Chicago, 1900; specialist certified by the American Board of Internal Medicine; since 1946 emeritus professor of medicine at the University of Kansas School of Medicine, where he joined the faculty as instructor of medicine in 1908, became professor of medicine in 1914, was acting chairman of the department of medicine from 1917 to 1919, and in 1946 its alumni established the annual Bohan Lecture in appreciation of his services as a teacher; formerly served on the state board of health; at one time vice-president of the Missouri State Medical Association; first president of the Kansas City Heart Association; past-president of the Kansas City Southwest Clinical Society; founding member of the Kansas City Academy of Medicine; an active member of the executive staff at St. Luke's Hospital; on the staffs of the Kansas City General, St. Mary's, and St. Margaret's hospitals; died Oct. 2, aged 81, of acute myocardial infarct.

Block, Siegfried ⊕ New York City; born in Berne, Switzerland, Sept. 22, 1882; Long Island College Hospital, Brooklyn, 1905; for many years on the faculty of his alma mater; specialist certified by the American Board of Psychiatry and Neurology; fellow of the American College of Physicians; member of the American Psychiatric Association; served as consultant for the board of education of New York City and the Court of Special Sessions; chief neuropsychiatrist, Greenpoint Hospital, Brooklyn, where he was formerly president of the medical board; attending neuropsychiatrist, Brooklyn Hebrew Home and Hospital for the Aged, and Menorah Home and Hospital for the Aged and Infirm in Brooklyn; consulting neuropsychiatrist, Samaritan Hospital and Hospital of the Holy Family in Brooklyn; died in the Montefiore Hospital Oct. 18, aged 73, of myocardial infarction.

Senger, William, Beulah, Colo.; born in Port Jervis, N. Y., June 8, 1874; Yale University School of Medicine, New Haven, 1901; an associate member of the American Medical Association; member of the Western Surgical Association; fellow of the American College of Surgeons; past-president of the Pueblo County Medical Society and the Colorado State Medical Society; member of the founders group of the American Board of Surgery; for many years practiced in Pueblo, where he was past-director of school district number 20, past vice-president of the Western National Bank, chief surgeon for the Colorado Fuel and Iron Corporation, and on the staffs of the Colorado State Hospital, St. Mary Hospital, and the Corwin Hospital, where he died Sept. 5, aged 81, of dissecting aortic aneurysm and arteriosclerosis.

Raycroft, Joseph Edward, Princeton, N. J.; born in Williamstown, Vt., Nov. 15, 1867; Rush Medical College, Chicago, 1899; associate professor of hygiene and physical education at the University of Chicago from 1899 to 1911; on the faculty of his alma mater from 1899 to 1904; from 1911 to 1936 professor of health and physical education at Princeton University; past-president and member of the council of the American Student Health Association; an associate member of the American Medical Association; for many years advisor for the New Jersey Department of Institutions and Agencies; member of the board of managers and later president of the New Jersey State Hospital in Trenton, where he died Sept. 30, aged 87, of cardiorenal vascular disease.

Porter, William Clare, colonel, U. S. Army, retired, Los Lunas, N. Mex.; born in Binghamton, N. Y., July 28, 1886; Albany (N. Y.) Medical College, 1907; entered the Medical Corps of the U. S. Army in 1918 and retired in April, 1947; attained the rank of colonel Oct. 19, 1942; director, school of military neuropsychiatry at Lawson General Hospital, Atlanta, Ga., from 1942 to 1946, and at Fort Sam Houston, Texas, 1946-1947; specialist certified by the American Board of Psychiatry and Neurology; fellow of the American Psychiatric Association; since 1947 superintendent and medical director of the Los Lunas Mental Hospital; died in the Presbyterian Hospital, Albuquerque, N. Mex., Sept. 24, aged 69.

Culver, Wesley Youngs ⊕ Katonah, N. Y.; born in Westhampton Beach Jan. 16, 1909; Vanderbilt University School of Medicine, Nashville, Tenn., 1937; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association; served during World War II; interned at the Flushing (N. Y.) Hospital and Dispensary; formerly a resident physician at the Pilgrim State Hospital in Brentwood, Institute of Living in Hartford, Conn., and the New York State Psychiatric Institute and Hospital in New York City; clinical director of the Four Winds; died in Westhampton July 11, aged 46, of acute myocardial infarction and arteriosclerosis.

Newell, Horatio Whitman, Baltimore; born Feb. 5, 1898; Western Reserve University School of Medicine, Cleveland, 1926; associate professor of psychiatry at the University of Maryland School of Medicine and College of Physicians and Surgeons; specialist certified by the American Board of Psychiatry and Neurology; member of the Medical and Chirurgical Faculty of Maryland, the American Psychoanalytic Association, and the American Psychiatric Association; past-president of the American Orthopsychiatric Association; served during World War II; consultant at the University Hospital; died Aug. 19, aged 57, of heart disease and emphysema.

Heaney, Noble Sproat ⊕ Los Angeles; Rush Medical College, Chicago, 1904; clinical professor of obstetrics (Rush) emeritus, University of Illinois College of Medicine, Chicago; specialist certified by the American Board of Obstetrics and Gynecology; past-president of the American Gynecological Society; member of the Institute of Medicine of Chicago; fellow of the American College of Surgeons; at one time practiced in Chicago, where he was on the staff of the Presbyterian Hospital; on the staffs of the Presbyterian Hospital-Olmsted Memorial, Temple Hospital, and the Cedars of Lebanon Hospital; died Sept. 26, aged 75, of cerebral thrombosis.

Cross, James Bailey, Buffalo; born in 1882; Columbia University College of Physicians and Surgeons, New York City, 1907; an associate member of the American Medical Association; fellow, past-president, and for many years treasurer of the American Urological Association; past-president of the Buffalo Academy of Medicine; fellow of the American College of Surgeons; specialist certified by the American Board of Urology; consultant, J. N. Adam Memorial Hospital at Perrysburg and the Buffalo State Hospital; attending urologist at Millard Fillmore Hospital and the Deaconess Hospital, where he died Oct. 9, aged 73, of coronary thrombosis.

McBroom, David Edward, Faribault, Minn.; born in Akron, Ohio, Dec. 31, 1883; Ohio Medical University, Columbus, 1907; specialist certified by the American Board of Psychiatry and Neurology; past-president of the Minnesota Medical Officers' Association and the East Central Minnesota Medical Society; superintendent of the Minnesota Colony for Epileptics in Cambridge from 1928 to 1944 and the South Dakota School and Home for Feebleminded in Redfield from 1944 to 1948; served on the staff of the Minnesota School and Colony; died in Minneapolis Sept. 3, aged 71, of coronary thrombosis and arteriosclerosis.

Reynolds, Edna Marguerite, Denver; University of Colorado School of Medicine, Denver, 1930; served on the faculty of her alma mater; specialist certified by the American Board of Ophthalmology; an associate member of the American Medical Association; member of the American Academy of Ophthalmology and Otolaryngology; served as secretary of the Denver Society of Ophthalmology; on the staffs of Denver General, Colorado General, St. Luke's, and Childrens hospitals, and the Porter Sanitarium and Hospital; died in Pueblo Sept. 25, aged 65, of uremia.

⊕ Indicates Member of the American Medical Association.

Abbitt, John Willis ⊕ Portsmouth, Va.; University of Maryland School of Medicine, Baltimore, 1910; past-president of the medical staff of the Kings Daughters Hospital, where he was formerly a member of the board of directors; chief of surgery and chief of the staff of the Maryview Hospital; died Sept. 26, aged 69, of acute coronary thrombosis.

Berry, Frederick Aymond ⊕ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; on the staffs of the Evangelical and Englewood hospitals; died in the Albert Merritt Billings Hospital Oct. 11, aged 74, of carcinoma of the esophagus.

Branson, Edward Carl ⊕ Captain, U. S. Army, Washington, D. C.; University of Tennessee College of Medicine, Memphis, 1947; interned at John Gaston Hospital in Memphis, Tenn.; served a residency at the Receiving Hospital of the City of Detroit and the Walter Reed Army Hospital; formerly taught anatomy at his alma mater; entered the regular army in January, 1951; died in Orange Park, Fla., June 3, aged 31, of pulmonary edema with focal hemorrhage.

Brunner, Hans ⊕ New York City; Medizinische Fakultät der Universität, Vienna, Austria, 1919; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; at one time on the faculty of University of Illinois College of Medicine; died July 15, aged 62, of cancer.

Bry, Martin Edwin, New York City; Yale University School of Medicine, New Haven, 1912; member of the Medical Society of the State of New York; died Sept. 11, aged 64.

Cadman, Robert Blakemore ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1923; certified by the National Board of Medical Examiners; served in France during World War I; on the staff of the Chestnut Hill Hospital, where he died Sept. 27, aged 59, of myocardial infarction and coronary thrombosis.

Caples, Byron H. ⊕ Reno, Nev.; University and Bellevue Hospital Medical College, New York City, 1903; member of the American Urological Association; served during World War I; director of the division of venereal disease control of the Nevada state department of health for many years; died in St. Mary's Hospital Oct. 6, aged 78, of arteriosclerotic heart disease and hypertension.

Chapin, Charles William ⊕ Greene, N. Y.; Albany (N. Y.) Medical College, 1904; for many years member and president of the school board; health officer of consolidated district of Greene; died in the Binghamton (N. Y.) City Hospital Sept. 16, aged 79, of ruptured abdominal aneurysm and pernicious anemia.

Coghlan, Jasper, East Orange, N. J.; New York Homeopathic Medical College and Hospital, New York City, 1900; served during World War I; associated with the East Orange General Hospital; died Oct. 3, aged 79, of cardiovascular renal disease.

Crouch, John Baker, Colorado Springs, Colo.; Northwestern University Medical School, Chicago, 1905; an associate member of the American Medical Association and in 1935 a member of its House of Delegates; first vice-president of the American Academy of Tuberculosis Physicians; member of the American Trudeau Society and formerly member of its council; on the staffs of the Glockner Penrose Hospital, St. Francis Hospital, and the Memorial Hospital; died Sept. 18, aged 74, of cerebral thrombosis.

Crutchfield, Pinkney Herman, Stamping Ground, Ky.; Kentucky School of Medicine, Louisville, 1893; an associate member of the American Medical Association; died in Georgetown Aug. 7, aged 85.

Drant, Patricia Hart ⊕ Westtown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1920; specialist certified by the American Board of Dermatology and Syphilology; member of the American Academy of Dermatology and Syphilology; fellow of the American Association for the Advancement of Science; on the staff of the Abington (Pa.) Memorial Hospital, Methodist and Woman's hospitals in Philadelphia; died in the Bryn Mawr (Pa.) Hospital Oct. 3, aged 59.

Durkee, John Watson, Morristown, N. J.; Columbia University College of Physicians and Surgeons, New York City, 1895; an associate member of the American Medical Association; member of the Medical Society of the State of New York and the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; specialist certified by the American Board of Otolaryngology; died July 6, aged 86.

Fletcher, Asa E., Omaha; Indiana University School of Medicine, Indianapolis, 1911; died July 17, aged 73, of cerebral hemorrhage and hypertension.

Friedman, Harry Jacob, New York City; Columbia University College of Physicians and Surgeons, New York City, 1903; member of the Medical Society of the State of New York; died in the Manhattan State Hospital July 18, aged 74, of coronary thrombosis.

Haggerty, Daniel Leo ⊕ Trenton, N. J.; Georgetown University School of Medicine, Washington, D. C., 1915; fellow of the American College of Surgeons; past-president of the Mercer County Medical Society; served during World War I; on the staff of the St. Francis Hospital; died in Morrisville, Pa., Oct. 8, aged 61, of cerebral vascular hemorrhage.

Hall, Earl Stanley, Westbrook, Maine; Medical School of Maine, Portland, 1920; an associate member of the American Medical Association; died in the Mercy Hospital, Portland, Aug. 19, aged 64, of cerebral hemorrhage.

Hopkins, Thomas Andrews ⊕ St. Louis; Missouri Medical College, St. Louis, 1894; at one time vice-president and secretary of the St. Louis Medical Society; served on the staffs of the state hospital in Fulton and Nevade, Mo.; died in the Deaconess Hospital Sept. 23, aged 88.

Jerrell, Paul Mahlon ⊕ St. Cloud, Minn.; University of Michigan Medical School, Minneapolis, 1923; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association; on the staff of the Veterans Administration Hospital; died July 24, aged 59, of reticulum cell sarcoma.

Libert, John Nicholas ⊕ St. Cloud, Minn.; Creighton University School of Medicine, Omaha, 1916; in 1925 vice-president of the Minnesota State Medical Association; past-president of the Stearns-Benton Counties Medical Society, of which he was secretary for many years; served during World War I; county coroner; on the staff of St. Cloud Hospital; died in Abbott Hospital, Minneapolis, Sept. 2, aged 62, of acute coronary insufficiency.

McClintock, John Thomas ⊕ Iowa City; State University of Iowa College of Medicine, Iowa City, 1898; professor emeritus of physiology at his alma mater, where from 1897 to 1901 he was demonstrator of pathology and anatomy, later professor and head of the department of physiology, for many years junior dean, and at one time chairman of the administrative committee; past-president of the Johnson County Medical Society; died Sept. 24, aged 82, of arteriosclerotic heart disease.

Meriwether, Lodwick Sterrett, New Orleans; University of Virginia Department of Medicine, Charlottesville, 1931; served during World War II; member of the Louisiana State Medical Society; died in Sunset, La., Sept. 11, aged 54, of coronary occlusion.

Moerke, Robert Frank ⊕ Burlington, Iowa; State University of Iowa College of Medicine, Iowa City, 1934; president of the Des Moines County Medical Society; county health officer; served during World War II; on the staffs of the Burlington and Mercy hospitals; died Sept. 28, aged 48, of leukemia.

Moore, Loyal Hamilton, McAllen, Texas; College of Physicians and Surgeons, Baltimore, 1910; past-president of the Hidalgo-Starr Counties Medical Society; died July 8, aged 72, of coronary thrombosis.

Muldoon, Wilfried Edward ⊕ San Antonio, Texas; University of Michigan Medical School, Ann Arbor, 1922; specialist certified by the American Board of Ophthalmology; served during World War I; on the staffs of the Nix Memorial, Brooke Army, and Santa Rosa hospitals; died Oct. 3, aged 58, of congestive heart disease.

Mullen, Lawrence George ⊕ Cambridge, Mass.; Tufts College Medical School, Boston, 1934; member of the American Academy of General Practice; served overseas during World War II; on the staffs of the Cambridge City Hospital and the Mount Auburn Hospital, where he died Oct. 11, aged 46.

Niles, Charles Milton, Forest Lake, Minn.; Chicago Homeopathic Medical College, 1900; died in the Bethesda Hospital, St. Paul, July 17, aged 77, of acute coronary thrombosis.

Noe, Philip R. ⊕ Centralia, Ill.; Milwaukee Medical College, 1912; died July 16, aged 70, of coronary thrombosis.

O'Donnell, George Thomas, Wethersfield, Conn.; Harvard Medical School, Boston, 1897; at one time deputy commissioner of tuberculosis for the city of Boston; died in St. Francis Hospital, Hartford, Oct. 3, aged 80, of nephritis.

Olson, Ole Hansteen, Erskine, Minn.; Rush Medical College, Chicago, 1886; died Sept. 25, aged 92, of nephrosclerosis and uremia.

Pattengill, Morrell, Cisco, Ill.; Rush Medical College, Chicago, 1895; died in the Decatur and Macon County Hospital in Decatur Oct. 7, aged 87, of heart disease.

Pearlstein, Phillip, Peekskill, N. Y.; University of Maryland School of Medicine, Baltimore, 1912; died Oct. 4, aged 75, of acute coronary occlusion.

Perkins, Ralph Sherburne ⊕ Harwich Port, Mass.; Johns Hopkins University School of Medicine, Baltimore, 1911; member of the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; past-president of the Worcester District Medical Society; served during World War I; consulting orthopedic surgeon, Worcester City and Worcester Hahnemann hospitals in Worcester, Holden District Hospital in Holden, and Harrington Memorial Hospital in Southbridge; died in Cape Cod Hospital in Hyannis Oct. 2, aged 60, of myocardial infarction.

Petit, William Daugherty ⊕ Presidio, Texas; Washington University School of Medicine, St. Louis, 1911; served in the regular Army and during World War I; died in the William Beaumont Army Hospital, El Paso, July 17, aged 71, of pulmonary infarction.

Post, Samuel James, Center Moriches, N. Y.; Long Island College Hospital, Brooklyn, 1912; member of the Medical Society of the State of New York and the American College of Chest Physicians; died Aug. 1, aged 72, of arteriosclerotic heart disease.

Ridgway, Eldo T., Lebanon, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1906; for many years practiced in Elkhorn, Wis., where he was mayor; served as state senator of Wisconsin; died Oct. 12, aged 74.

Rimson, Oscar, Cleveland; Tufts College Medical School, Boston, 1929; interned at the Morrisania City Hospital in New York City; formerly resident physician at the Sea View Hospital in Staten Island, N. Y.; died in the Highland View Cuyahoga County Hospital Sept. 14, aged 50, of pneumonia.

Sauer, David Eric ⊕ Lubbock, Texas; University of Cincinnati College of Medicine, 1937; interned and served a residency at the Youngstown Hospital; member of the American Academy of General Practice and the Texas Academy of General Practice; formerly a resident at the Medical Arts Hospital in Dallas; on the staffs of the Methodist, West Texas, and St. Mary's hospitals; died in St. Joseph's Hospital, Denver, Oct. 9, aged 45, of coronary insufficiency.

Schantz, Henry Franklin, Reading, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1891; served during World War I; on the staff of the Community General Hospital, where he died Sept. 13, aged 86, of congestive heart disease.

Schillander, Carl Axel, Fort Lauderdale, Fla.; Tufts College Medical School, Boston, 1910; member of the Massachusetts Medical Society; practiced in Springfield, Mass.; served during World War II; died July 30, aged 66, of acute myocardial infarction.

Schurgot, James Adam, Grafton, Ohio; University of Pittsburgh School of Medicine, 1914; on the staff of the Elyria (Ohio) Memorial Hospital; died in Cleveland Sept. 30, aged 66, of carcinoma of the stomach.

Self, William Osce, Columbia, S. C.; Duke University School of Medicine, Durham, N. C., 1937; interned at the Johns Hopkins Hospital, Baltimore; served a residency at the Palmerton (Pa.) Hospital; certified by the National Board of Medical Examiners; member of the American Academy of General Practice; died in the Columbia Hospital Sept. 29, aged 43.

Slabotsky, Samuel, Central Village, Conn.; Eclectic Medical University, Kansas City, Mo., 1918; Kansas City (Mo.) College of Medicine and Surgery, 1920; died in Veterans Administration Hospital, Montrose, N. Y., July 6, aged 63, of infarction of the myocardium.

Smith, Leonard Higbie ⊕ East Orange, N. J.; University and Bellevue Hospital Medical College, New York City, 1903; fellow of the American College of Surgeons; for many years on the staff of the Orange Memorial Hospital; died in Madison Oct. 8, aged 78, of a cerebral vascular accident.

Sopher, Curtis Levi ⊕ Wakefield, Mass.; University of Vermont College of Medicine, Burlington, 1890; fire department physician, chairman of the board of health, planning board member, and for many years commissioner of the municipal lighting department; died Oct. 5, aged 89.

Steward, Rebecca Viola Ditzler, Merriam, Kan.; Kansas City Homeopathic Medical College, 1898; died Sept. 19, aged 89, of heart disease.

Toney, Sherwood M., Bennington, Okla. (licensed in Oklahoma under the Act of 1908); died July 12, aged 74, of cancer.

Turner, Kenneth Burlen ⊕ New York City; Harvard Medical School, Boston, 1926; associate professor of medicine (clinical medicine) at Columbia University College of Physicians and Surgeons; member of the Association of American Physicians and the American Society of Clinical Investigation; certified by the National Board of Medical Examiners; on the staff of the Presbyterian Hospital; died Oct. 9, aged 54, of cerebral hemorrhage.

Vaccari, Zeferino, Huntington Station, N. Y.; Regia Università degli Studi di Palermo, Facoltà di Medicina e Chirurgia, Italy, 1920; died July 23, aged 62, of pulmonary embolism, septicemia, and arteriosclerotic encephalomalacia.

Vardy, Philip L., Estelline, Texas; Missouri Medical College, St. Louis, 1897; member of the State Medical Association of Texas; local health officer; on the staff of the Childress (Texas) General Hospital; died Aug. 30, aged 84, of coronary thrombosis.

Verdeschi, Felix L. ⊕ Ozone Park, N. Y.; New York Medical College, Flower and Fifth Avenue Hospitals, New York City, 1928; on the staffs of the Physicians Hospital in Plattsburg and the Mary Immaculate Hospital in Jamaica, where he died Sept. 10, aged 53, of coronary disease.

Vloedman, Derk Andrew ⊕ Woodward, Okla.; Loyola University School of Medicine, Chicago, 1925; served during World War I; for many years taught at his alma mater; at one time practiced in Blue Island, Ill., where he was president of the board of education, district 130, from 1946 to 1952; formerly on the staffs of the Ingalls Memorial Hospital in Harvey and St. Bernard and St. George hospitals in Chicago; on the staff of Memorial Hospital; died Oct. 6, aged 56, of ruptured aortic aneurysm.

Wagner, Earl Calvin ⊕ Tupper Lake, N. Y.; Syracuse University College of Medicine, 1908; member of the American Society of Anesthesiologists; died Sept. 12, aged 68, of coronary arteriosclerosis.

Walter, Ralph Somers, Harrisburg, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1920; died in the Harrisburg Hospital Aug. 28, aged 65, of bronchiectasis.

Welch, Gilford Nelson ⊕ Centralia, Ill.; National University of Arts and Sciences Medical Department, St. Louis, 1914; died June 28, aged 65, of coronary thrombosis.

FOREIGN LETTERS

CHILE

Amebic Rectosigmoiditis.—Dr. B. Biel in the May issue of the *Revista médica de Chile* reports on a series of 91 patients, aged 13 to 76 years, with intestinal amebiasis. Twenty-two patients also had a bacteriological study before and after treatment. Three clinical types of the disease were observed: (1) acute or chronic dysentery with an exacerbation; (2) nondysenteric chronic diarrhea; and (3) a nondiarrheal form. About 50% of the patients belonged in group one; 28% in group two; and 22% in group three. The proctoscopic findings were classified as: ulcerative, congestive-granular, simple congestive, small miliary abscesses, or normal. Ulcers were found in 32% of the patients (48% of those with acute dysentery; 11% of those with the nondysenteric form; and 21% of those with the nondiarrheal form). In 45% of all patients, the congestive-granular form was observed, this being the most frequent form (present in 39% of the patients with dysenteric symptoms; 46.5% of those with nondysenteric diarrheas; and in 57% of those with nondiarrheal amebiasis). The simple congestive type was found in only 3%; small miliary abscesses were found in 4.3%; and normal-appearing mucosa was found in 15% but never in patients with dysentery. Shigella sonnei was found in the stools of two patients. The results of treatment cannot be judged exclusively on the proctoscopic appearance. At the end of treatment with antibiotics the author observed (1) clinical healing with normal mucosa and no amebas in the stools; (2) clinical healing with no amebas in the stools but persistence of a granular mucosa; (3) persistence of pathological proctoscopic findings and/or amebas in the stools; and (4) congestion of the mucosa but no amebas in the stools. Thus, positive post-therapeutic proctoscopic findings combined with the absence of other factors must not be considered important; their meaning requires further study. However, it is the presence or absence of Endameba histolytica in stools that determines if the patient is cured.

Dioxyline Phosphate for Arterial Insufficiency.—Dr. Otto Herrmann in the July issue of the *Revista chilena de angeologia* reported on 18 patients (mostly men) treated with dioxyline phosphate. Obliterating arteriosclerosis of the extremities was present in 15, arterial emboli in 2, and Raynaud's disease in one. Thirteen of the patients smoked an average of 30 cigarettes daily; 14 complained of claudication, 13 had paresthesias, and 13 complained of coldness of the extremities. The distance a patient could walk before claudication appeared varied from 50 to 500 m. (164 to 1640 ft.). The average duration of the disease prior to the initiation of treatment was two years and two months. Physical examination revealed absence of pulse, pallor, cyanosis, coldness of the extremities, and absence, or decrease, of oscillometric readings. In this series there were no mild cases; two were moderately severe; nine were severe; and seven were very severe. Twelve patients had manifestations of arteriosclerosis in other parts of the body, coronary disease, heart failure, or hypertension. One had diabetes, but this was controlled. Dioxyline phosphate was given twice daily for two weeks. The double blind method of control was used. When treated with dioxyline phosphate the 14 patients with claudication increased their range by at least 6 times, some even by 15 times. The effect on claudication started between the 5th and 10th day of treatment and reached its maximum between the 10th and 20th day. Trophic pain present in 10 patients also began to decrease, and coldness of the extremities, which existed in 13 patients prior to treatment, disappeared in 10 and was markedly relieved in the 3 remaining patients. Similar results were obtained regarding paresthesias. Local temperature became normal in half of the patients and increased significantly in the remaining half. The use of placebos did not benefit the patients.

Infant Diarrhea.—A series of 126 infants under one year of age with diarrhea were examined proctoscopically by Dr. M. Vera (*Revista chilena de pediatria*, March). The duration of the diarrhea prior to the examination was less than 10 days. Second grade dystrophy was present in 66% of the infants, and the diagnosis on admission was severe nutritional disorder (75% had toxicosis or dyspepsia with severe dehydration). The following types of proctosigmoiditis were observed on proctoscopic examination: (1) catarrhal congestive, with a pathological congestion, easy bleeding, with or without edema, and in some a granular appearance; (2) erosive; and (3) ulcerative. Lesions of one of these types were found in 22.4% of the patients, most of them being the catarrhal congestive type. No relation was found between the intensity of the lesions and the severity of the clinical findings, nor could any relation be established between the proctoscopic and the stool examination. The proctoscopic examination of the infant is a simple procedure, provoking only slight distress, but a complete knowledge of the normal appearance of the intestinal mucosa of the infant is necessary because it is quite different from that of the adult; that is, greater thickness and mobility and a deeper pink color, which renders the visualization of the blood vessels more difficult.

Congenital Atresia of the Esophagus.—In *Revista chilena de pediatria* (March, 1955) Garces and Escallon state that congenital atresia of the esophagus with tracheoesophageal fistula-like congenital atresia of the intestine occurs in about one of every 10,000 births. The commonest type is that in which the proximal portion of the esophagus ends as a slightly dilated blind pouch and the distal portion is a narrow tube that communicates with the trachea. In infants so afflicted, there is a flow of mucus from the mouth, precocious regurgitation, attacks of asphyxia, fulness of the epigastrium, constipation, dehydration, and loss of weight. Aspiration bronchopneumonia is a common complication, usually of the right upper lobe. Seven of the authors' eight patients died in the first week of life, and, in all, bronchopneumonia was the cause of death. The clinical diagnosis is based on the characteristic symptoms and may be confirmed by esophageal catheterization and roentgenologic examination using iodized oil. Endoscopy is difficult to perform at this stage of life. The treatment is surgical and consists in the closure of the fistula and an end-to-end anastomosis between the upper and lower segments of the esophagus. The earlier the operation is performed, the better the prognosis. Advances in thoracic surgery have permitted numerous survivals in the last 10 years.

ENGLAND

Restaurant Sanitation.—Wilson and Carter conducted a survey of the sanitary standards in the kitchens of 50 restaurants and canteens in Glasgow (*M. Officer* 94:193, 1955). Unannounced visits were made to these between 1:30 and 2:15 p. m., when kitchen activity was at its highest. Swabs for bacteriological examination were taken of cutlery, crockery, and cooking utensils, and samples of dishwater and dishtowels were collected. Of the 10 kitchens belonging to reputedly high class restaurants, the sanitation was unsatisfactory in 3 and the dishwater was sufficiently hot in only 5; of the 30 restaurants of good everyday type, the sanitation was poor in 10 and washing facilities inadequate in 18; of the 10 kitchens belonging to office or works' canteens, the dishwater was not hot enough in 4. Toilet facilities were also inadequate for the staff in many kitchens, and the usual method of drying the hands was with a communal towel.

The criteria of bacteriological cleanliness laid down were not more than 500 organisms per cubic centimeter in the dishwater and 100 organisms for the whole of the surface swabbed in the case of utensils, cutlery, and crockery. This standard is also prescribed by the United States Public Health Service. Of 42

The items in these letters are contributed by regular correspondents in the various foreign countries.

dishtowels, only 5 yielded bacterial counts of less than 1,000 per square inch; 5 gave counts between 100,000 and 1,000,000. Ten yielded Escherichia coli, and others yielded enterococcus organisms, Clostridium welchii, a coagulase-positive Micrococcus pyogenes var. aureus organism, and nonhemolytic streptococci. Only 10 of 42 samples of dishwater yielded bacterial counts of less than 1,000 per cubic centimeter. The same organisms were isolated from the dishtowels. Ninety plates were examined; 51 had bacterial counts of under 1,000 for the surface swabbed, and 4 had counts of over 1 million. Of 102 articles of cutlery swabbed, 68 had bacterial counts of under 1,000; one spoon had over 1 million organisms on the surface swabbed. Some yielded E. coli, an M. pyogenes var. aureus organism, and nonhemolytic streptococci. Of the cups, 50% yielded counts of under 1,000 for the area swabbed. No Salmonella organisms or hemolytic streptococci were isolated from any of the kitchens, but in 74% of these E. coli organisms were obtained from one or more articles. No dishtowels came up to the prescribed standard. Ventilation was inadequate in 11 of the 50 kitchens examined, and it was here that the worst bacteriological findings occurred. The paramount need in most kitchens was for more hot water of suitable temperature (180 F [82.2 C] or above).

Long-Distance Swimmers.—Pugh and Edholm have investigated the factors concerned in the ability to endure long immersion in cold water (*Lancet* 2:761, 1955). In 1951 there was a swimming race across the English Channel in which 18 competitors swam from France to England in 12 to 20 hours in water at a temperature of 60 F. Their physiological performance was compared with that of normal male athletes. It was concluded that long-distance swimmers tolerate hypothermia better than normal subjects. Rectal temperatures were the same in two of the cross channel swimmers as in a normal athlete who was forced to give up swimming after an hour's exposure, owing to exhaustion and a feeling of muscular weakness. The rectal temperatures of all subjects were in the region of 94 to 96 F (34.4-35.5 C). It was concluded that these long-distance swimmers reach a stable state in which the effective thermal insulation of the outer tissues is such that heat production balances heat loss. In practice swims, the energy output of one of the competitors was measured. This was 310 to 350 calories per square meter per hour, which was comparable with results obtained in nonprofessional swimmers studied under similar conditions. In spite of the identity of heat production, the latter became hypothermic in only half an hour. One long-distance swimmer sat motionless in a bath of 60 F for over an hour without complaining of discomfort. The difference between the thickness of subcutaneous fat of long-distance swimmers and that of normal athletes suggested that cold water tolerance is related to this factor. In one of the swimmers, thermal conduction and heat insulation were measured. Thermal conduction was half that of the normal subject and insulation twice that of the normal subject. Pugh and Edholm attribute these differences to the physique of the swimmers, who were fat, many of them grossly so. Normal subjects cool more rapidly while swimming than while lying still. This suggests that the traditional naval advice in case of shipwreck to cling to wreckage and not to waste energy by swimming or struggling is probably sound.

The Noncalculous Gallbladder.—As a sequel to the celebrations commemorating its 450th anniversary, the Royal College of Surgeons of Edinburgh has launched a journal of its own, the *Journal of the Royal College of Surgeons of Edinburgh,* which is to be published quarterly. The first issue, which is dated September, 1955, contains an article by Sir Heneage Ogilvie in which he advises any young surgeon who would keep the respect of his students, the trust of his colleagues, and the integrity of his conscience to deny the existence of the noncalculous gallbladder and chronic appendicitis, or at least to refuse a fee for operating on them. "Only in middle life when he has . . . set his reputation in an unassailable position by years of honest dealing, may he admit to himself that such lesions do exist, and recommend to patients that they be treated by operation." The author further states that a distressing cause of late common duct obstruction is overcareful technique. There are surgeons in whom the fear of blood loss is carried to such an excess that nothing is divided until it has been doubly ligated, and they are still tying ligatures on hypothetical bleeding points around the common duct long after other surgeons have closed the abdomen and gone home to tea. The result, when at last the operation is finished, is a field that is bloodless but covered with innumerable silk knots, beautifully tied and cut short, but nevertheless irritant foreign bodies. The outcome, years later, is a dense fibrous tissue that may compress and completely obstruct an undivided common duct.

Helicopter for Emergencies.—The value of the helicopter in war for evacuating the wounded was well demonstrated in the Korean campaign. In any future war helicopters are likely to be one of the main means of transport of serious casualties. Their peacetime use in medical emergencies is just being realized. Recently a helicopter brought medical aid promptly to the scene of an accident on board a Dutch vessel off Flamborough Head. A seaman was badly injured, and radio calls for medical assistance brought a medical officer of the Royal Air Force by helicopter, which landed on the deck of the vessel. A helicopter service is of greatest help in isolated districts many miles from expert medical assistance. In parts of Scotland districts are often cut off by snow in the winter so that roads are impassable for a period of time. Last winter in "Operation Snowdrop" supplies were landed in cut-off villages by naval helicopter, and some patients suffering from illness and exposure were rescued by their means. Anticipating that such conditions might arise again, the Scottish North Eastern Regional Hospital Board has now arranged to bear the cost of a helicopter ambulance service operated by naval helicopter from Lossiemouth, which, subject to prior claims by the Navy, will be available for the transport of civilian patients to a hospital in an emergency. A device is now available that enables the helicopter to "scoop" the casualty from the sea, or scene of accident, without landing.

Shortage of Lay Staff in Hospitals.—To obtain and keep a nonmedical staff is a constantly recurring problem for many hospital authorities. There is not only a shortage in the hospitals of pharmacists, radiographers, and medical auxiliaries but also of domestic workers, maintenance engineers, and the like. The shortage of staff is partly a matter of money—a further 28 to 84 million dollars would be required to pay all the additional staff needed—and partly due to difficulty in obtaining personnel. This in turn is attributed to the wage level, fixed by a central controlling authority, which is uniform for any one type of worker in the hospitals all over the country. In industry it is usual for wage agreements to settle minimum rates and to leave each employer free to pay more than the agreement lays down if it is thought desirable. Local conditions may necessitate payments above the minimum. In the hospital service, however, fixed rates are laid down and the individual hospital cannot pay more or less. If an industry is slow to give maximum possible remuneration, optimum working conditions, and chances for promotion and improved status, it may lose some of its workers. Wage rates vary up and down the country, and, in prosperous industrial areas, hospital workers are hard to get because they can obtain better paid industrial jobs in the same area. Some hospitals are also 50 to 100 years old and less pleasant to work in than some modern factories.

Juvenile Suicide.—In 1953 the officially recorded suicides and attempted suicides among children, aged 8 to 17 years, in England and Wales averaged nearly two a week, according to Donald Mulcock (*M. Officer* 94:155, 1955). In the period 1938-1953, there were 357 suicides in this age group, of which 274 (77%) were boys and 83 (23%) were girls. Attempted suicides reported to the police numbered 1,218, of which 786 (64%) were girls and 432 (36%) were boys. Nearly 50% of the boys who committed suicide did so by hanging or self-strangulation; 34% used carbon monoxide; 15% used firearms; and other methods used in order of frequency were drowning, drugs and poisons, and jumping in front of a train. In the case of girls, almost 70% used carbon monoxide; none used hanging or strangulation means. In the period 1935-1949 inclusive, accidental death due to strangulation among children 10-15 years old occurred in 127 boys and 6 girls. Contributing causes included lack of home stability; emotional instability; feelings of being unwanted, unloved, or in the way; pubertal metabolic imbalances; and psychosexual disorders. The author concludes that threats of suicide by juveniles should never be taken lightly. Although 9 times out of 10 it merely indicates bravado, no emotionally healthy child is moved to say such things. Those making such threats should be helped and unobtrusively observed.

Health Insurance.—Addressing the annual meeting in London of the British Hospitals Contributory Schemes in September, the Minister of Heatlh said that about 3,750,000 subscribers to private health insurance plans, or a sixth of the working population, were now enrolled in these schemes and that, if dependents were considered, the number of persons covered was probably 10 million, or a fifth of the population. This was in spite of the National Health Service. The schemes had an income of more than $5,500,000. Any scheme should aim at having as a reserve an amount equal to a year's income. Fifteen schemes had reached this goal, and two-thirds had reserves equal to over 75% of a year's income. The state should never try to run a social service wholly by itself. Voluntary effort helps to bring the hospitals nearer the community. About 1,400 hospitals in the country now have their own League of Friends, or a similar voluntary organization, but 1,000 are without such attachment. It was easy to get voluntary work done in the small local hospital but not so easy in those that a few years ago were public assistance institutions or infirmaries; it was more difficult still in mental hospitals. The Minister of Health said that he thought that some form of National Health Service would come to every country eventually. In some cases it would be run by the government, in others it would be based on insurance schemes.

Signs of Anoxia.—In a study on the acute respiratory infections of childhood, Dr. Brenda Morrison has confirmed that color is a poor guide in diagnosing the lesser degrees of anoxia (*Lancet* **2**:737, 1955). Some healthy children normally have a dusky appearance, while dangerous anoxia may not be accompanied by any appreciable color abnormality, particularly if the patient already has a low hemoglobin level. Oxygen lack was closely correlated with restlessness in the children examined. This restlessness varied with the amount of anoxia present and was pronounced when the oxygen saturation fell below 80%. Restlessness is the outstanding sign of oxygen deficiency in the acute respiratory diseases of childhood. Disturbed sleep for any length of time, persistent crying, repeated flexion and extension of the limbs, rolling of the head, and arching of the back are manifestations of restlessness. Handling, or any interference, is resented. These signs are dramatically relieved, if due to oxygen lack, by the administration of oxygen. An oxygen concentration of 60 to 70% in the ordinary oxygen tent is often required to relieve restlessness. In severe cases 95% oxygen supplied by a face mask, or a special box, may be necessary. Serious anoxia was more common in infants than in older children, and the behavior of the infant was the most valuable clinical guide for the control of oxygen therapy.

Inspection of Doctors' Offices.—At its meeting on Sept. 29, the London Executive Council received a report from the London Local Medical Committee on the inspection of general practitioners' offices begun by the committee in October, 1954. The committee considered that 1,360, or 90.7%, were satisfactory as regards accommodation and equipment. In a further 101 cases, or 6.7%, the premises were for various reasons considered unsatisfactory but had been brought to a satisfactory standard subsequently as a result of suggestions by inspectors. This made a total of 97.4% satisfactory premises. Seven physicians were unable to make their offices satisfactory or to obtain alternative accommodation. In 16 cases the London Executive Council had been asked to inspect the premises because the physician had refused access to inspectors, had refused to comply with requests for improvement, or had delayed in carrying out improvements. Nearly 1,500 premises have been dealt with under the program of inspection. Complaints had been made to the committee that a few patients were guilty of destructive and dirty behavior and of pilfering. Such irresponsibility made it difficult for physicians to maintain adequate standards. There were apparently still cases of hardship caused by bomb damage in the war, and in such cases rehousing was necessary.

Tuberculosis Among National Servicemen.—All national servicemen in the Manchester area were x-rayed by an Army mass miniature radiography unit in March, 1952, February, June, and September, 1953, and March, 1954. The average number of men who underwent radiography on each of these occasions was 444. On each occasion one new case of pulmonary tuberculosis was discovered. None of these men, whose ages were 19 or 20, had had any illness during the period of national service, and all had had previous roentgenograms of the chest 4 to 13 months previously, which had been normal. In reporting these findings in the *Journal of the Royal Army Medical Corps* (**101**:246, 1955) Major Simon Freeman stated that as a result of them the following routine has been established for all service personnel at the Manchester Garrison Medical Center: (1) all must undergo radiography at least once a year; (2) all must undergo radiography before service overseas; (3) all must have a radiological examination of the chest on return from overseas; and (4) all must undergo radiography before demobilization. The last three examinations are made only if there has been no radiological examination of the chest within the preceding three months.

New Penicillin.—Since 1949 mycologists have investigated the antibiotic properties of Cephalosporium. Work in the Michigan Department of Health, Abbott Laboratories, Parke, Davis & Company laboratories, and at the Sir William Dunn School of Pathology, Oxford (*Nature* **176**:551, 1955) has shown that synnematin B and cephalosporin N derived from this source are identical in their activity against micro-organisms, destruction by penicillinase, antibacterial behavior after being run on paper chromatograms in a variety of solvent systems, and products formed after acid hydrolysis. Since they resemble potassium penicillin G in some of their properties, Sir Howard Florey suggests that both be renamed penicillin N, or aminocarboxybutyl penicillin. A number of patients with typhoid and salmonellosis have been successfully treated with these drugs derived from Cephalosporium. It is possible that patients who are sensitive to penicillin G may tolerate these new drugs, in view of the fact that skin tests show that some patients sensitive to the latter do not react to the new antibiotics.

Would-Be-Physicians' English.—At the Westminster Hospital Medical School's prize-giving day on Oct. 3, the dean deplored the low standard of written English of many of the applicants for admission to the medical school. Only 1 in 10 reached the academic and personality standards required by the selection committee of the school. The dean said that any member of the medical profession should be able to put his thoughts on paper clearly and that this could be done only if one had a good command of written English. The contemplated removal of English from the minimum entrance requirements for the medical school (and others) in London University is deplored. In interviewing applicants the dean said that he found very few who devoted more than two brief periods a week to the study of English and that, although several achieved an adequate standard, none achieved a high standard of English; in most the standard was so low that it bordered on illiteracy.

Physicians' Fees for Temporary Residents.—General practitioners in the National Health Service are entitled to a supplementary fee of 70 cents, payable by the state, if called to a patient away from home or because of emergency. Such a patient is called a temporary resident. This fee includes any number of attendances that are necessary after an initial visit. One general practitioner complained of this in the correspondence columns of the *British Medical Journal*. He said that many of the so-called temporary residents called him after consulting hours and at night. In his desire not to split up a family during holidays by sending one of them to the hospital, he may have to make many visits. One case involved 14 visits, including 2 night calls, all for 70 cents. This did not cover gasoline for his car. As a final comment he notes that a small screw was replaced in his refrigerator door. It took 10 minutes, and the charge was just over $1.

Color Blindness.—Using the Ishihara test, W. F. W. Betenson (*M. Officer* **94**:169, 1955) found 243 cases of color blindness in 6,000 boys, aged 10 to 18 years. Of these boys, 53% were green blind, 14% were completely red-green blind, 11% were red blind, 16% were incompletely red-green blind, and in 6% the condition was indeterminate. After the initial test, 211 of these boys had one or more additional tests. It was evident from this retesting that, although in many instances one or two of the plates were read differently by the same boy, the original classification into one of the above-mentioned groups was usually correct. The author urges that testing for color blindness by the Ishihara test be required at all routine school medical inspections.

Whooping Cough Vaccination.—In February, 1953, there was a severe epidemic of whooping cough in London. Dr. Brooks analyzed the incidence of the disease in relation to whether the affected children had been vaccinated against whooping cough (*Month. Bull. Min. Health* **14**:142, 1955). In an estimated population of 2,000 vaccinated children, there were 121 cases of whooping cough, but, in an estimated population of 4,000 unvaccinated children, there were only 149 cases. On the other hand, there were no severe attacks in any vaccinated child, and the proportion of attacks that were "severe or moderate" was 13% in the vaccinated group, compared with 75% in the unvaccinated group.

Proprietary Drugs.—The capital value of Britain's proprietary medicine industry is more than 280 million dollars, according to Mr. H. E. Chapman of the Proprietary Articles Trade Association, who discussed this in an address before the British Pharmaceutical Conference in Aberdeen. The trend in the type of drugs most in demand was indicated by $2,087,232 of the total being spent on analgesics, $1,665,249 on laxatives, $1,456,843 on indigestion remedies, $674,612 on cough and cold remedies, and $536,676 on vitamins. The prescriptions of proprietary preparations in England and Wales have risen from 18% of all prescriptions in 1950 to 31.75% in 1954.

Fluorescent Flicker.—At the 117th annual meeting of the British Association for the Advancement of Science in Bristol in September, Dr. W. F. Floyd of the Middlesex Hospital medical school said that tests given to 30 clerks and typists showed that the slight flicker in fluorescent lighting did not impair their eyesight. These office workers were able to pick out names and numbers from telephone books as well under flickering fluorescent tubes as with ordinary filament lamps. Careful checks on their eyes throughout the four months' experiment showed that no damage was done as a result of working under fluorescent lighting.

FRANCE

Functions of International Congresses.—The Council for International Organizations of Medical Sciences held its third general assembly in Paris on Sept. 30 and Oct. 1. The council was founded in Brussels, Belgium, in 1949 under the joint auspices of UNESCO and the World Health Organization and brings together most of the nongovernmental international organizations in the field of medicine. Its object is to disseminate information that will promote advances in medical science and encourage the application of such knowledge throughout the world. The assembly was concerned with the present trend of international congresses, and it reexamined the real functions of these meetings in the light of the changed situation brought about by specialization and the increased output of scientific research in various fields. On the one hand, the more general congresses were becoming too large, the number of papers read too great, and the opportunities for real discussion too rare. On the other hand, specialization tended to increase the number of meetings, and these specialized meetings often lost contact with their parent disciplines. As international congresses are not the best mediums for reporting scientific discoveries, it was agreed that much could be done to improve the opportunities they offered for personal contacts, for disseminating information to a wide international audience, and for arranging international symposiums and other related activities.

With regard to written communications, it was agreed that there was much duplication between indexing and abstracting services. The difficulties of achieving coordination were recognized, but it was thought that action of limited scope should be undertaken whenever opportunities arose. Standardization of terminology is an important activity that the council would continue to encourage. The assembly decided to promote a shift from individual participation to group participation through precongress working parties and symposiums, or by the appointment of experts to make digests of related communications, through a greater participation of young research workers, and through the holding after a congress of special international courses for the host country, in particular cases. The council will continue to organize symposiums and scientific meetings in underdeveloped countries. The assembly also instructed the executive committee to explore the possibilities of initiating a program in geopathology.

INDIA

"Ayurveda."—In an editorial in the August issue of the *Antiseptic*, Dr. Kirshna Rau stated that public opinion has been strongly rising in favor of *Ayurveda*, a system of medicine supposed to have dated from the 27th century B.C. and extended to about the 10th century A.D. After that it appears to have stagnated, although it has never completely died out. Several eminent physicians, after having practiced modern medicine, have studied *Ayurveda* with great interest and enthusiasm. The Chopra Committee has published a translation, with notes, on the writings of Caraka, pioneer of the Ayurvedic system, and has made extensive study of indigenous plants under a grant from government. Research institutions have been established along modern scientific lines to study *Ayurveda* in relation to modern western medicine. One of the drugs that has created world-wide interest, Rauwolfia serpentina, comes from this indigenous system of medicine. The research institute at Jamnagar has been functioning for over three years, with one team working along purely *Ayurvedic* lines and another along modern western lines. *Ayurveda* flourishes in rural India, where over 85% of the population continues to be treated by this system. Because it is based to a great extent on botanical knowledge and the availability of a wide range of medicinal plants, it has the advantages of being cheap and of using easily available drugs. The protagonists have brought out several arguments in its favor including the sense of patriotism, and antagonists, backed by physicians trained in modern medicine, have considered it ancient and useless. The editorial has tried to show that the truth lies somewhere between the two points of view. If the *Ayurvedic* system is to come into its own again, there must be an integration of it with all that is best in any other system of medicine. This can only be done if *Ayurvedic* institutions develop into active centers of objective research.

Treatment of Hemiplegia.—Bharucha and Ganeshan in the *Journal of Postgraduate Medicine* for July reported on 16 patients with hemiplegia due to vascular accidents who were treated by injecting a 2% solution of procaine into the stellate ganglion soon after the onset of the disease. Successful injection was confirmed by the appearance of Horner's syndrome immediately after the injection was made; eight patients showed definite improvement, and in each there was first a return of power followed by a return of tone, reflexes, and speech. Stellate ganglion block acts by relieving prolonged spasm. Although various accidents including pneumothorax, spontaneous collapse of the lung, and sudden death may occur, only one patient in this series died. Death occurred within a few minutes after the third procaine injection. No autopsy was performed. The maximum improvement occurred in patients who were treated within the first 12 to 24 hours after the onset of hemiplegia. The degree of improvement showed no relationship to age. The block was repeated about every 12 hours until no further improvement was noted; four to six injections were required in most cases.

Primary Lung Cancer.—Although the incidence of primary cancer of the lung is much lower in Bombay than in the western countries, in the last decade it appears from autopsy reports to have steadily increased. The importance of tobacco as a causative factor in India has been studied. In Bombay State alone the average consumption of cigarettes more than doubled between

1949 and 1953. The poorer classes, however, smoke a native product that is a little smaller than a cigarette. Unlike a cigarette, it is not wrapped in paper but in tobacco leaves and the tobacco used is not so highly refined as cigarette tobacco; 96,800,000 lbs. of this unrefined tobacco was consumed in 1950 and 120,200,000 lbs. in 1953 for the whole of India. At a staff meeting of the G.S.M. College and K.E.M. Hospital in Bombay, Dr. D. D. Banker stated that of 9,210 autopsies performed between 1926 and 1953 at the K.E.M. Hospital, 370 cases of malignant disease were found. Of these, 292 were cancer and 78 were sarcoma; only 43 were primary carcinoma of the lung. Secondary malignancy of the lung was found at 60 autopsies. The patient's symptoms had included breathlessness, cough, cachexia, and ascites. In some cases death had occurred within six weeks; the longest survival period without operative treatment was two years, but the average duration of life was six to nine months. Death had been due to cachexia and bronchopneumonia in most of the patients.

Lepromin Test.—In the April issue of the *Bulletin of Calcutta School of Tropical Medicine*, Dharmendra and Chatterjee reported on the prognostic value of the lepromin test in persons who have been exposed to infection from lepers. The lepromin test is useful in determining the prognosis in persons suffering from the disease as well as in contacts, and its value has increased in recent years because of the possibility that BCG vaccination may be a useful prophylactic measure—this procedure converts a negative into a positive lepromin reaction. The authors made a follow-up study of 803 healthy persons on whom a lepromin test had been performed 15 and 20 years earlier in a rural district of Bengal; 123 were not available, and, of the remaining 680 persons, leprosy was detected in 39, or 5.7%. The incidence of the disease was higher (14%) in the lepromin-negative group than in the lepromin-positive group, in which the incidence was only 3.2%. Furthermore, the lesions that developed in the lepromin-negative group were of the more serious lepromatous type.

Prophylaxis of Malaria.—Mitra and Chaudhary (*Bulletin of Calcutta School of Tropical Medicine*, April) have carried out therapeutic trials with a single dose of amodiaquin alone and in combination with primaquine to determine the value of these drugs in preventing malaria. They found that prophylaxis was possible with a single dose repeated at fortnightly intervals. The trial was carried out in a rural area and primaquine was added because of its action on the gametocytes. Two groups of 200 persons in adjacent villages about 35 miles from Calcutta were selected for this trial. One group was given the prophylactic dose using two tablets for adults, one for children, and half a tablet for those below the age of four years. Each tablet contained 150 mg. of amodiaquin and 10 mg. of primaquine. At the end of three months blood smears were negative for parasites in the treated group in contrast to the control group in which the incidence of parasite-positive smears had risen from 4.1 to 8.9%.

Herpes Zoster.—In the *Bulletin of Calcutta School of Tropical Medicine* for April, Chakraborty and Bannerjee reported taking the fluid from vesicles of patients with chickenpox and preparing a filtrate. They gave this filtrate subcutaneously, beginning with doses of 0.1 ml. and increasing gradually to doses of 0.3 ml. daily, or every second day, according to the severity of the disease, to 10 men with herpes zoster. Progressive relief from pain was noted soon after the first injection. The vesicles dried within a week in all patients, and in none did any neuralgia persist after the acute stage had subsided. These results compare favorably with those obtained with the use of herpes zoster tissue filtrates. These results give further evidence of the close relationship between the virus of herpes zoster and that of chickenpox and the possibility that they may be identical.

Filariasis.—Although blood examination for microfilaria is generally carried out at night because of the nocturnal periodicity of the parasites, this is not necessary provided a careful examination of a sufficient amount of blood is made during the day. Chaudhary and Bhaduri (*Bulletin of Calcutta School of Tropical Medicine*, April, 1955) took blood from the finger and the antecubital vein of 68 patients. The venous blood collected during the day was negative for parasites in 18 of the patients, although the same patients had positive findings on examination at night. Buxton has suggested that the diurnal counts would be positive when the nocturnal count was over 40, but the authors could not show any such definite relationship. They conclude that examination of a nocturnal specimen is essential for best results.

New Anthelmintic.—Cardol, a constituent of cashew nut shells, has been studied for its anthelmintic property in human beings, because its action has been already recognized in dogs. Cardol, which is chemically a substituted resorcinol, is a viscid brown liquid having powerful irritant properties when applied to the skin or mucosa. Bhaduri and his co-workers gave gelatin capsules, each containing 6 gm., to adults with various infections. There was no sign of toxic effect or fluctuation in blood pressure after cardol was given. In 16 of 23 patients so treated ascariasis was cured; in 19 of 27 patients ankylostomiasis was cured; and in 3 of 10 patients trichuriasis was cured.

Penicillin G in Anemia.—Bhende and Dixit in the *Journal of Postgraduate Medicine* for July reported on six patients with nutritional megaloblastic anemia who were given crystalline penicillin G by mouth. Penicillin is not a hemopoietic agent, but its influence on the intestinal bacterial flora has been said to affect the synthesis, absorption, or availability of vitamin B_{12} in the intestinal tract. This treatment was completely ineffective in this group of patients. The authors believe that the fact that nutritional megaloblastic anemia is not an entity explains the discrepancy in the results obtained by them and those reported by others.

NORWAY

Botulism.—The omission of botulism from the list of reportable diseases in Norway is excusable in that none of the 43 cases of it recorded in this country proved fatal, but a recent outbreak reported by Dr. Sindre Lunde in the *Journal of the Norwegian Medical Association* shows that, had this disease been reportable, much suffering might have been avoided. The trouble began on June 5, 1954, when the inmates of a school partook of a smoked ham. The gastrointestinal symptoms that followed were so slight and transient that they attracted little attention. On June 8, disurbances of vision set in, but, although the ophthalmologist consulted suspected botulism, the disease not being reportable, no action was taken and the ham was allowed to appear again on the table on June 19. This time there were 33 patients, 4 of whom had to be admitted to the hospital. As on the first occasion the reaction began with the gastrointestinal symptoms, which lasted a day or two. After the second day neurotoxic symptoms developed persisting for weeks and in some patients for months. Involvement of the throat and eyes was indicated by difficulties of swallowing, dryness of mouth and throat, loss of pharyngeal reflexes, blurred vision, and diplopia. Clostridium botulinum type B was isolated in pure culture. The B vitamins and neostigmine, or acetylcholine, were given with good effect, but, in some, the ocular symptoms lasted for two months. There are some curious geographical differences in the behavior of botulism. The reason it is more deadly in the United States than in Norway may be that type A is the more prevalent type in the United States, whereas type B is predominant in Norway. The three important outbreaks observed here were traced to infected hams, whereas the six outbreaks observed in Denmark were traced to mackerel, salmon, and herring. The fluctuations in the incidence of botulism at different times and in different countries are probably more apparent than real, reflecting the degree of botulism-consciousness of the medical profession from time to time. Such consciousness might well be stimulated were the seriousness of botulism to be stressed by its inclusion among the reportable diseases.

Acetazolamide for Glaucoma.—In *Tidsskrift for den norske Lægeforening* for Aug. 15, Dr. T. H. Berg reported on 15 patients given acetazolamide as a supplement to other remedies for glaucoma. Among the five patients with acute glaucoma, there were four in whom the combination of acetazolamide with physostigmine and pilocarpine effected a reduction of the intraocular pressure to normal. Among the five with simple glaucoma, there were three in whom eczema around the eyes prevented the use of the usual miotics. In these patients the intraocular pressure could be reduced pending the advent of a phase suitable for operation. Among the four patients with secondary glaucoma was one whose condition had proved refractory to the usual drugs. An operation had seemed inevitable, but after 17 days of treatment with acetazolamide the pressure had become normal. In several patients a fall of pressure in response to acetazolamide was not maintained for long and it became necessary to increase the dose in order to obtain the desired effect. Four patients responded to the drug with gastrointestinal symptoms, and one became so nauseated that it had to be withheld. Four patients suffered from paresthesia of the limbs, which in one was provoked by a single dose of 250 mg. An attack of renal colic occurred in one patient during this treatment. Berg believes that acetazolamide has not yet displaced the older drugs used to treat glaucoma but that it may be regarded as a useful supplement to them.

SPAIN

Gastric Circulation.—Drs. A. de la Fuente Chaos of the University of Madrid and J. L. Puente Dominguez of Santiago de Compostela studied 300 human stomachs after gastrectomy and at autopsy. In general, the vascular arches of the greater and lesser gastric curvatures give rise to large collateral vessels, which branch off at intervals of about 1 cm. These vessels occupy small areas on the surface of the stomach, give small branches to the serosa, and constitute the most superficial vascular plexus of the stomach. They then perforate the gastric wall and progress into the deeper layers of the stomach. In the antrum the vessels of the serous plexus form direct anastomoses by inosculation in an uninterrupted layer. In the fundus these vessels anastomose in star formation with vessels originating in the submucosa. This leaves large spaces without vascularization between the two layers. Microphotographic examination showed that (1) collateral vessels that branch off at a right angle are predisposed to be transformed into recurrent vessels; (2) the caliber of the veins is much greater than that of the arteries; (3) primary vessels change their direction near the point of their origin when they are ready to perforate the gastric wall; and (4) the purely serous vessels are few and small and are placed in a spiroid arrangement by means of which they are adapted to the physiological and pathological dilatations of the stomach. Most of these vessels follow a transverse course from one curvature to the other. The possible recurrent disposition of the primary branches is of interest in the development of local ischemia and venous stasis. Both conditions are favored by bending the branches, near the point at which they enter the deeper layers. The surgeon should bear in mind that the vascularity of the central portion of the fundus is scanty. This makes it necessary to exercise extreme care during suturing, especially when the circulation is impaired as a result of the presence of edema and fibrosis of the wall. In gastric operations, horizontal rather than vertical sutures should be used to prevent strangulation of the vessels and ischemia.

The structure of the vascular plexus of the muscular coat is the same as that of any vascular plexus along all layers of smooth muscle tissue of the digestive tract. The light arrangement of the vascular plexus facilitates circulation during the constant muscular contraction. The function of the vessels of the muscular coat depend on the tonicity of the coat. The scanty vascularization of the muscular zone may be the cause of the poor functional results seen when the atonic stomach of a patient is operated on. The failure of recuperation of gastric tonicity after gastrectomy, when the operation is performed on patients with marked gastric dilatation and pyloric disease of long duration, seems to indicate incapacity of the muscular coat to recover because of the poor vascularization in this zone. No arteriovenous anastomoses occur in the muscular coat.

The submucosal vascular plexus is the most important source of vascularization of the stomach. Between the muscular layer and the muscularis mucosae, there is a heavy zone of connective tissue in which blood vessels branch off and constantly multiply, thus creating a layer of enormous vascularity. The arteries of the submucosal vascular plexus are arranged in polygonal formation, with an enormous multiplication of closed anastomoses that result in a constant, uniform, and intense vascularization of the zone. These characteristics explain the failure of partial ligation in cases of gastrorrhagia because of the fact that the multiplication of anastomoses interferes with the unilateral closure. The caliber of the veins is three or four times that of the arteries. Venous blood lacunae are formed in some of the large veins. Some of the veins have many vasa vasorum. The stratigraphic arrangements of the vessels, their volume, the multiplicity of their anastomoses, and their passage into the mucosa by means of vertical arborizations show that this richly vascular layer is the stomach's only blood depot. This large vascular plexus maintains hypersecretion of the glandular apparatus, but it may be the cause of the occurrence of grave and even fatal hemorrhages from perforation of venous blood lacunae. Repeated hematemesis and melena is explained by uniformity of the blood supply given by the arterial polygonal formation. Arteriovenous anastomoses exist in this plexus. The vascular plexus of the muscularis mucosae is the seat of most of the arteriovenous anastomoses. The role of the vascular short circuits in the formation and course of gastric ulcer has been proved. Closing and opening of vascular short circuits result in hypoxia or anoxia in certain zones. This facilitates the digestion of tissues by the gastric juice.

Submucosal Plexus.—With certain regional exceptions, the arteries of the submucosal plexus pass obliquely through the muscularis mucosae to reach the mucosa. Here they divide into three or four branches in a spiral arrangement and end in capillaries that form circles about the glands. Changes of caliber of the capillaries play an important role in the formation and course of gastric ulcer through their correlation with the nervous mechanism that regulates stimuli and controls the quantitative and qualitative variations of gastric secretion. Ulcers occur frequently in the poorly vascularized zone between the antrum and the duodenum. The occurrence of the ulcer either in the gastric or the duodenal region gives special characteristics to its clinical evolution, which depends on the degree of vascularity of the involved region. A similar ulcerous predisposition may exist in the lesser curvature where few vascular anastomoses are found. The vessels of the mucosa of the lesser curvature are not branches of the submucosal plexus as is the case with those in other gastric regions. They have an extragastric origin, branching off from the left gastric artery. These branches perforate the gastric wall without forming a submucosal plexus. When they reach the muscularis coat they separate into three or four tortuous branches that anastomose with those nearby. Then they branch off into the mucosal arteries, forming a vascular layer similar to vascular layers observed in other regions except that the diameter of their lumen is very small and they form but few anastomoses. The extragastric origin of the arteries of the lesser curvature gives these zones certain peculiarities. The blood supply depends on local stimulation of the mucosa and on general sympathetic stimulation, which causes vasoconstriction of the main arteries. This is not the case with the blood supply of the mucosal zone of the anterior and posterior walls, the vascular mucosal plexuses of which are regulated by the same stimulation that regulates the submucosal plexuses. The value of this arrangement is appreciated when it is compared with the action of the vagus that causes acute ischemia in the antrum pylori in the lesser curvature. These structures form a circulatory solidarity that suddenly disappears in the duodenal region. Similar vascular changes are caused by emotion and stress.

The vascularity of the cardia, the lower portion of the esophagus, and the gastric fundus is uniform. The left branch of the hepatic artery progresses through the omentum to the anterior and posterior aspects of the abdominal esophagus. The inferior phrenic artery divides into the superior or diaphragmatic, the right or esophagocardial, and the left or tuberosal branches, which reach the thick gastrophrenic ligaments. The large anastomoses of these vessels and the absence of valves in the coronary veins may cause retrograde currents in patients with portal hypertension. Under these circumstances, varices form in the fundus and in the esophagus. The presence of an abundant periadventitial venous plexus and of vasa vasorum in the local vessels is another possible cause of gastric lesions. If thrombosis is the real cause of gastric ulcers, the role of the periadventitial plexus is definite because of the fact that the zones of ischemia in this plexus may produce thrombosis of the underlying vessels.

CORRESPONDENCE

VITAMIN K EMULSION

To the Editor:—In the Oct. 15, 1955, issue of The Journal, page 635, is an article entitled "Treatment of Coronary Thrombosis with Myocardial Infarction," which contains a recommendation for the use of one of our products that is causing us considerable concern. As printed in The Journal, the disturbing statement appears as the first complete sentence on page 638. Speaking of the antidotal use of vitamin K for anticoagulant-induced hemorrhage, a dose of 5 to 10 mg. per kilogram of body weight of "vitamin K emulsion" is given by reference to a single article on this use of the emulsion (vitamin K_1 is clearly meant since it is the only such emulsion domestically available and the article referred to is on "emulsified vitamin K_1"). Such a dose of vitamin K_1 for a man weighing 75 kg. (165.4 lb.) would come to a total of 375 to 750 mg. of Emulsion of Vitamin K_1 given intravenously. This dose is away and beyond anything recommended for the treatment of anticoagulant-induced hemorrhage. Our original dosage recommendations for the emulsion were in the general range of 100 to 150 mg. for emergency use. Since the introduction of Emulsion of Vitamin K_1 a large body of literature has collected on the subject showing a steady trend to a much lower dosage. We have just revised, and had accepted by the Food and Drug Administration, a new text on Emulsion of Mephyton, recommending doses for emergency use usually only up to 50 mg. (Occasionally doses up to 100 mg. may appear necessary and may be advisedly used.) There are two good reasons for not giving excessively large doses of Emulsion of Vitamin K_1. One, that from larger doses prolonged interference with subsequent therapy with prothrombin-depressing drugs occurs; and two, the intravenous use of huge amounts of the emulsion presents a question of safety that has not been adequately investigated. So it is hard to justify the use of up to 750 mg. (15 cc.) of this material as against a usually adequate dosage of up to 50 mg. (1 cc.). We realize that the authors of the article have reported accurately from their reference by Guttas and co-workers (*Blood* 8:276, 1953); however, this single paper, published over two years ago, does not represent the present consensus of most investigators using Emulsion of Vitamin K_1 as an antidote to prothrombin-depressing anticoagulants. The consensus, as mentioned above, is toward relatively low dosage. Furthermore, Guttas and his colleagues in their article recommend far smaller doses of vitamin K_1 in the absence of emergency (even these doses—0.5 to 2.0 mg. per kilogram of bodyweight—are higher than those now considered good practice for nonemergent use). Realizing the importance of optimum dosage and dosage forms, Merck & Company, Inc., will make available tablets of vitamin K_1 so that in nonemergent situations small doses can be given readily and without the need for intravenous administration. Investigators have found that quite small doses of vitamin K_1 by mouth aid in the control of prothrombin levels and lessen the hazard of actual hemorrhage from anticoagulants.

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SKIN TESTING FOR PENICILLIN SENSITIVITY

To the Editor:—The report of Berger and Eisen in The Journal, Sept. 17, page 191, "Feasibility of Skin Testing for Penicillin Sensitivity," quite properly emphasizes the shortcomings of this procedure but does not adequately assay the value of the penicillin skin test when it is positive. The association of a strongly positive immediate skin test, read at 15 minutes, with penicillin anaphylaxis has been documented by many authors. Recently B. B. Siegel and co-workers reported positive passive transfer in every 1 of 10 instances of anaphylactic shock, with a high titer of reagins in several, indicative of the presence of a positive immediate direct test. Thus most observers agree that a strongly positive immediate skin test is indicative of anaphylactic sensitivity to penicillin and serves as a warning against its administration. This test is most safely done by the scratch method and only then supplemented by graded intracutaneous tests. Nonetheless false negative tests occur. It is only the positive, not the negative test, that is of clinical value. The delayed positive skin test is more common but of less certain clinical usefulness. First described by Welch and Rostenberg (*J. A. M. A.* 126:10 [Sept. 2] 1944) it was found positive in 5% of adults tested. This incidence among those never before exposed to penicillin (a possibility more certain a decade ago than today) was confirmed by others. Risman and Boger (*J. Allergy* 21:425, 1950) tested over 200 persons in three groups: those not previously exposed to penicillin, those treated but not reacting, and those with a history of reaction. The incidence of the positive delayed test was, in the respective groups, 5, 10, and 55%. These tests were carried out with crystalline penicillins rather than with procaine penicillin, as done by Berger and Eisen. However, there is some indication that the latter likewise elicits a positive reaction, although it may be a less sensitive test material. Berger and Eisen also deviated from the technique employed by previous observers in that they injected only 0.02 cc. instead of the usual 0.1 cc. for this test. Neither the delayed nor the immediate skin test is likely to be positive at the time of or soon after the ordinary delayed type of urticarial reaction. Tests are positive if some level of persistent penicillin sensitivity is established. The immediate reaction becomes highly positive if an anaphylactic level is attained. The delayed test is positive only when either an erythematovesicular reaction has or may occur or when an accelerated (not immediate) clinical reaction is likely. As with the immediate skin test, the absence of a positive delayed skin test should not be interpreted as indicating absence of allergy. Berger and Eisen state their belief that penicillin desensitization "is not feasible." Its feasibility has been documented by at least four independent observers (O'Donovan and Klorfajn, *Lancet* 2:444, 1946; Peck and Siegal, *J. A. M. A.* 134:1546 [Aug. 30] 1947; Alexander, *A. M. A. Arch. Dermat. & Syph.* 68:323 [Sept.] 1953; and Roberts, *A. M. A. Arch. Indust. Hyg.* 8:340 [Oct.] 1953). Several of these cases illustrate not only the recovery of tolerance to the antibiotic in full therapeutic dosage but also the conversion of penicillin skin tests from positive to negative. Limitations of, indications for, and technique of penicillin desensitization are included in my recent review of the problem of antibiotic allergy (*New York J. Med.* 55:2303, 1955).

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ESTROGENS AND BLEEDING

To the Editor:—I read in the Oct. 8 issue of The Journal, page 546, the article "Estrogen Given Parenterally to Control Epistaxis and Hemorrhage After Adenoidectomy." The author states that "the purpose of this article is to offer a relatively new approach to these problems." I have been in general practice for the past 25 years and have done a fairly large amount of nose and throat surgery. In the early 1930's, while perusing the literature to obtain information concerning the control of bleeding following tonsillectomy and adenoidectomy, I found that the use of estrogens was advocated for the control of bleeding, and I used them parenterally in patient's who had postoperative hemorrhage. I am glad that the author called attention to the use of estrogens in bleeding, but their use is not new. After practicing medicine for many years, one hears of many new discoveries that are not really new or discoveries.

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MISCELLANY

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IS THERE A DOCTOR . . .?

Richard Gordon

Lecturers in medical schools often wonder during their last twenty minutes of class what can be occupying the dozen or so students who are not fiddling with their notebooks, sharpening their pencils, staring encouragingly at the clock, or reading a newspaper under cover of their desks. These pupils are sitting with their chins in their hands and their pens in their mouths, lost in thought. They are, in fact, indulging in the same little daydream, which runs like this:

The student, in his best suit, is walking down Oxford Street on a sunny afternoon, which is suddenly disturbed by the squeal of brakes and a scream. Immediately a crowd gathers. This respectfully divides as he hurries up, pulling out his stethoscope, and announcing "I am a doctor." In the road lies the most beautiful blonde he has ever seen. Behind her stands her mother in hysterics and a distraught taxidriver. "I'll take charge here," says the student crisply. "No fractures," he adds, running his hands professionally over her limbs. "Constable—don't stand there staring, man! Fetch an ambulance. Don't worry, my dear, you're in good care." He visits her daily at the hospital, and during her convalescence they get married. Afterwards they live happily in a large country house, because her father turns out to be unbelievably rich, and she bears him several beautiful children.

Such happy accidents unfortunately never happen. The first one I attended, a week after passing my finals, may have involved a blonde heiress—I never found out. Pushing my way into the crowd I came against a large man in a check overcoat who spun round and shouted "Who the hell d'you think you're shoving, sonny?" "I am a doctor," I explained with dignity. For a second he looked me up and down, assessing my youthful face, my only suit, and the collar that should have been at the wash. "And I'm Madame Butterfly," he said, returning to his savouring of the disaster.

At my next accident I reached the centre of the crowd, where I found a drunken Irishman holding his foot with one hand and trying to fight a lorry driver. As I attempted to minister to him he tried to fight me instead, and I was glad to be hustled away by the police. My third accident occurred in Cornwall. This time I won the esteem of the audience, so much so that a week later I was summoned to give evidence in the local police court. The case was a complicated one, and had to be adjourned several times. Later it developed into a civil action at the local assizes. By then I was beginning to think of giving up my London practice and settling in Truro.

Now I wouldn't even answer an appeal for a doctor in the middle of a West End musical—it would be only one of the stage hands down with his rheumatism again. This attitude is not wholly compatible with the Hippocratic Oath, but it agrees with the forthright gentleman who taught me surgery, Old Blood and Thunder. "Never stop for a street accident, gentlemen," he declared during a lecture on fractures. "It'll land you in the coroner's court quicker than anything. Besides, you'll be spoiling a lot of fun. Do you realize that every street in the country's full of men, women, and Boy Scouts who've got a first-aid certificate and are longing for a chance to slap on a pair of splints in dead earnest? Let them get on with it, gentlemen—they know a damn sight more about pressure points and bandages and black eyes than we do. If ever I'm dragged out of the Thames I'll have a healthy policeman to do artificial respiration, thank you, not some overweight doctor who's soon more asphyxiated than I am. Besides," he added, "you'll never get a fee for it. Remember, gentlemen, that human bones are filled not with red marrow but black ingratitude."

The public nevertheless enjoys seeing a man dashing up with a stethoscope, and the medical profession is never thought of more highly than when it is getting in the way of two trained attendants trying to push a stretcher into an ambulance. For drama, a doctor in a hurry is better than a fire engine and almost as good as a smash-and-grab. This was demonstrated by a fellow-student of mine who enjoyed passing his spare evenings at one of the big Palais de Dance in Tottenham Court Road. The man who shared his digs rang up one night and asked if his friend might be brought to the telephone, adding, for prompter service, that the dancer was a doctor. The management, who recognized free entertainment by instinct, immediately stopped the band and ordered a roll on the drums. The conductor stepped to the microphone and announced solemnly that Dr. Smith was needed urgently on the 'phone. Smith happened to be in the middle of the floor, and was picked out by a red spotlight and he hurried towards the exit through awe-struck couples, who reverently made way. He said he felt disappointed himself when his friend asked where he had put the sausages for supper.

Another student at Edinburgh some years ago was less fortunate. He was riding in a tram down Princes Street one morning shortly after his arrival when it knocked over a pedestrian. The vehicle's first-aid box was produced, and an untidy old gentleman who had been sitting opposite shakily tried to apply a tourniquet. After watching him fumble for some time the student said "Here, old chap, you'd better let me have a go at that. I'm a medical student."

"By all means, young man, if you wish," was the reply. "Though I don't suppose you'll have much more success, because I'm the Professor of Surgery."

THE LEISURE CORNER

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THE DOCTOR ON THE SCREEN

HE HAS BEEN IN RELATIVELY VERY FEW FILMS AND FEW OF THEM HAD ANY SIGNIFICANCE

Jack Spears

The doctor has been the central figure in little more than a hundred fiction films in the more than 50 years of filmmaking.

Almost all were box office successes (the most notable turkey was *Sister Kenny*). Stanley Kramer's current *Not as a Stranger* is expected to gross between seven and ten millions.

From an informed, realistic medical viewpoint, however, only a few of these movies had anything of consequence to say.

The doctor got into movies quite early. He appeared in some of George Méliès' curiosities, broadly caricatured of course, but possessed of the air of mystery and superiority doctors have immemorially enjoyed.

The country doctor has been much beloved in movies.[1] One of D. W. Griffith's early Biograph films was devoted to and called *The Country Doctor*. The title was also used for the picture Rupert Julian produced and directed in 1927 for Cecil B. DeMille's short-lived company, and for the picture Henry King directed in 1936 for 20th Century-Fox. These three pictures had different stories. Henry King's was a sentimental account of the birth of the Dionne quintuplets and the role of Dr. Alan Roy Dafoe (played by Jean Hersholt).

The public's love and respect for the country practitioner precluded the intrusion of social values into films about him. This was especially true of the *Dr. Christian* series, a group of medical soap-operas featuring Jean Hersholt. Also true of Will Rogers' homey charms in *Doctor Bull*, a John Ford directed version of James Gould Cozzens' novel, *The Last Adam*, about a New England village medico who cared for all ills—from horse to human. Lew Ayres added considerable stature to the medical profession as a backwoods Pygmalion in *Johnny Belinda*. Bing Crosby and Barry Fitzgerald traded the round collars of *Going My Way?* for the stethoscope of *Welcome Stranger*, more an attempt to capitalize on the success of the earlier film than to deal seriously with medicine.

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[1] The story that inspired Sir Luke Filder's famous painting was made into a 2-reeler in 1926, entitled, of course, *The Doctor*. Eight years later a 1-reeler song act, also called *The Doctor*, was built around Sir Luke's painting and was touchingly sung by Helen Morgan.

The best country doctor picture was RKO's *A Man to Remember*. Filmed in fifteen days at a cost of only $119,000, this unpretentious B-film proved to be one of the sleepers of 1938. It was Garson Kanin's first directorial effort, and Edward Ellis gave a beautifully low-key performance as a country doctor too dour to be really popular, too kindly to collect his fees, and too conscientious to neglect his professional responsibilities.

The doctor has been very useful as a personality device, different from the common run of men, to spice otherwise routine romantic melodramas. In 1915 one of these was called *The Doctor's Secret*. In 1929 that title was used for a film in which the secret was Ruth Chatterton's attempt to leave her husband and her return to him when her lover is killed.

Doctors provide excellent situations for domestic dramas and light comedies. One of the earliest romantic mellers using a doctor for its main gimmick was *The Doctor and the Woman*, from the Mary Roberts Rinehart novel. It was scripted and directed by Lois Weber, one of Hollywood's very few women directors (cf FIR, Nov., 1950). Strictly geared for laughs were *Every Girl Should Be Married*, *Over the Moon*, *The Doctor Takes a Wife*, and the stupid *No Minor Vices*. As the harried pediatrician in *Every Girl Should Be Married*, Cary Grant set a pattern which was frequently repeated. Fred MacMurray was a likeable baby specialist in *The Lady Is Willing*, as was James Mason (in some curious casting) in *Caught*, a peculiar mixture of comedy and drama.

The doctor-nurse-wife variant of the eternal triangle has been used in such light fare as *Doctor's Women*, *Doctor's Wife*, *Doctor and Nurse*, and *Between Two Women*. The latter, a potboiler of 1937, was scripted by Erich von Stroheim, although his name did not appear in the final credits. The once-great director of *Greed*, according to the publicity, based most of the story on personal observations at the Los Angeles hospital in which his wife had been a patient.

Other domestic dramas with medical overtones included *Doctors' Wives*, an early Frank Borzage talkie; *I Take This Woman*; *I Married a Doctor*; *The Doctor and the Girl*, a Dr. Kildarish mish-mash of medicine, romance, domesticity and sociology; and *Society Doctor*, in which Robert Taylor, as a Park avenue specialist, did little more than prepare his public for his appearance as a dedicated young doctor in *Magnificent Obsession* (1936). That slick soap-opera was re-made last year.

The doctor does not lend himself too well to comedy. He was broadly caricatured by Mack Sennett, and in 1925 by Stan Laurel in a take-off called *Dr. Pyckle and Mr. Pryde*.

One of Harold Lloyd's best vehicles was *Doctor Jack* (1923), a spoof about a breezy young country doctor who believed in auto-suggestion. Doctors delighted in Lloyd's unorthodox prescriptions: excitement for a bored society girl, the visit of a neglectful son to his invalid mother, curing a small boy by telling him the schoolhouse burned down. Stethoscopes became make-believe telephones and temperatures were taken with sugar candy. If Lloyd poked fun at the pompous seriousness of the medical profession, he also showed that much of the art of medicine lies in inducing a sense of optimism and happiness. Many physicians came away from this Lloyd comedy with a quiet desire to be like Doctor Jack.

Very probably the doctor is too staid a figure for comedy. Not so for action pictures, however. *Dr. Jim* (1921) was a rollicking sea story about a doctor who had a selfish wife. Thomas Mitchell gave an excellent performance as the drunken doctor in *Stagecoach*. Johnny Mack Brown was a convincing medico in *Flame of the West*, as was Jeff Chandler in *The Great Sioux Uprising* and Charles Starrett in *The Medico of Painted Springs*. Doctors have also been useful in mysteries. Lionel Atwill solved the crime in *Dr. X* (1932), as did the doctor in *Dr. Broadway* (1942). *Green for Danger* was a very intriguing mystery involving an operating room.

Although a "doctor" is an indispensable character in horror films, most producers designate them as "scientists." Even so, the practicing physician appears frequently in "chillers"—e. g., the oft-made *Dr. Jekyll and Mr. Hyde*, *The Mad Doctor*, and *The Crime of Dr. Crespi*. *Life Returns* was an incredibly bad but very curious film about a practicing physician tampering with the secret of life. Originally produced by Universal in 1934 and considered too bad for release, it was eventually given a few showings through an independent distributor after the director, Eugene Frenke, bought the negative from Universal. More recently it has been making the rounds on television. Onslow Stevens gave a fine performance as the young doctor and the medical detail was quite accurate.

The doctor as psychiatrist is not as new in films as young cinemaddicts think. *The Lunatics* or *Dr. Goudron's System*, based on the André de Lord play, was made in 1914. The psychiatrist was very important in some of the post-War I German successes—notably *The Cabinet of Dr. Caligari* and both of Fritz Lang's *Dr. Mabuse* films, which contained many authentic medical and psychiatric touches.

Private Worlds (1935), the first of the modern psychiatric films, and an interesting excursion into the social problems of mental illness, was perhaps ahead of its time. The psychiatric movie came into its own a decade later with Alfred Hitchcock's *Spellbound*. Basically, *Spellbound* was a typical Hitchcock "chase," and the lesson in psychiatry it gave audiences, though accurately documented, was a mistake. Neither Ingrid Bergman nor Gregory Peck made good psychiatrists, but Michael Chekov, as a kindly Dr. Freud type, gave a realistic portrayal. A dream sequence designed by Salvador Dali was excellent. *Spellbound* was adversely criticized in some psychiatric circles even though it accurately presented psychiatry and psychoanalysis.

Anatole Litvak's *The Snake Pit* was not great cinematic art but it was the first film to show, honestly and thoughtfully, what happens when a person ceases to be an interesting neurotic and is locked in an institution. Litvak's insistence upon realism was very effective. Though socially significant, *The Snake Pit's* accusing and terrifying theme made it unpopular.

The Dark Mirror, with Lew Ayres as a psychiatrist investigating the pathological complexes of twin sisters, was silly but unique. *The Doctor Takes a Wife* treated psychiatry in terms of broad comedy. *The Cobweb*, a slick film with glossy finish, has a competent cast and good direction but does little more than corroborate the old medical saw that you have to be a little mad to be a psychiatrist.

The public health doctor was effectively, if belatedly, lauded in Elia Kazan's *Panic in the Streets*, and, to a lesser degree, in *The Killer That Stalked New York*. The specialist in infantile paralysis got his due in *Young Lovers* and *Interrupted Melody*, as did the medical missionary in *Grand Canary*, the prison doctor in *My Six Convicts*, the obstetrician in *Life Begins*, the brain surgeon in *Dark Victory*, and the plastic surgeon in *A Woman's Face*, *The Scar* (also known as *Hollow Triumph*), and *A Stolen Face*.

The doctor in World War II has received scant attention. Virtually the only picture about him was Cecil B. DeMille's *The Story of Dr. Wassell*. In a sensitive performance Gary Cooper portrayed the small-town Arkansas physician who, as a Navy medical officer, successfully evacuated nine wounded men from Java after the Japanese invasion. DeMille could not resist giving to this simple tale of simple heroism the bright and brassy trappings of a Technicolored superepic. As a result it misfired.

A World War II doctor had a minor role in *Mister Roberts* and in the British-made *Counterblast*. There were aspects of the post-war military medico in *The Men*, in which Everett Sloane gave a fine performance as the doctor. The refugee doctor was depicted in a disappointing version of Erich Maria Remarque's *Arch of Triumph*. The wealth of medical detail in the novel was almost entirely lacking in that hackneyed film, and Charles Boyer was a singularly unconvincing Dr. Ravic.

The nurses of World War II were featured in *So Proudly We Hail* and *Cry Havoc,* two dramas of nurses on Bataan.[2] Nursing has been depicted in many movies, including Biograph's *The Romance of a Trained Nurse; The White Parade; The Nurse's Secret;* and a series of cheap mysteries starring Aline MacMahon (*Patient in Room 18, While the Patient Slept).* Probably the best picture about nurses was George Stevens' *Vigil in the Night* (1940), a somber story about a patient who died because of a nurse's dereliction of duty, with Carole Lombard as a wooden-faced nurse and Brian Aherne as a gloomy doctor.

The woman doctor was first portrayed on the screen by Bessie Barriscale, in a frothy 1921 comedy entitled *Kitty Kelly, M.D.* The lady medico appeared in more serious vein in *Dr. Monica, Private Worlds,* and *Woman Doctor. Girl in White* was the autobiography of Dr. Emily Dunning Barringer, the first woman doctor to intern at New York's Bellevue Hospital. Its semi-documentary style vitiated what could have been a romantic account of interesting medical experiences. Greer Garson essayed the woman doctor most recently in *Strange Lady in Town.* Even her graciousness did not save that melodrama about a woman doctor on the New Mexico frontier.

The medical student, played for comedy in the recent British *Doctor in the House,* has been best depicted in *Miss Susie Slagel's,* in which Lillian Gish was the spinster who kept a boarding house for students at Baltimore's Johns Hopkins Medical School.

The most interesting films about doctors are those in which the background is some aspect of the medical profession itself. *Young Dr. Kildare* began an engaging series of entertaining dramas of the big metropolitan hospital. Doctors were bemused by some of the clinical hi-jinx of Dr. Kildare (Lew Ayres), but audiences were delighted and trooped back for years to see films appallingly alike. When Ayres was bundled off to the Army (he was a conscientious objector), MGM quietly substituted the bobby-sox idol, Van Johnson, in the role of the young intern and continued as before—with equal or greater success. Despite some liberties in the portrayal of hospital life, the *Dr. Kildare* series, and its successor, the *Dr. Gillespie* series, were good for medicine, and did much to counteract the effects of the "exposé" type of film.

Several pictures on medical history were made in the late '30s and early '40s. The best were Warners' *The Story of Louis Pasteur* and *Dr. Ehrlich's Magic Bullet,* both directed by William Dieterle. The former traced the career of the conqueror of anthrax and father of the modern germ theory. Aided by the Academy Award performance of Paul Muni, it was, despite some tinkering with truth, a faithful account of a medical triumph. *Dr. Ehrlich's Magic Bullet* touched on the hitherto eschewed theme—except in cheap exploitation pictures—of syphilis. The story of the discovery of 606, the arsenical compound used to treat syphilis, was tactfully handled (the Hayes office required that the script, by John Huston, reduce references to syphilis by name to twelve). Hollywood has not again ventured into this subject.

Paramount's *The Great Moment* was a confusing, but likeable, comedy-drama of the discovery of ether by a Boston dentist, Dr. W. A. Morton. As originally conceived by Preston Sturges, it essayed a dramatic interpretation. But studio officials were displeased and compelled Sturges to cut nearly three reels. The emasculated result largely consisted of contrived comedy episodes—funny only to those who can enjoy laughter in a context of physical misery. Joel McCrea, Harry Carey and Louis Jean Heydt were convincing doctors.

Other films utilizing medical history are Dieterle's *The White Angel,* the story of Florence Nightingale (with an antiseptic Kay Francis failing miserably in the lead); *Yellow Jack,* an uninspired account of the conquest of yellow fever; and *The Prisoner of Shark Island,* a dull biography of Dr. Samuel A. Mudd, the Maryland farmer-doctor sent to the Dry Tortugas for setting the broken leg of John Wilkes Booth.

Joseph L. Mankiewicz has directed two films about the medical profession: *No Way Out* and *People Will Talk.*

In the latter, an adaptation of Curt Goetz's fine German film, *Dr. Med. Praetorious,* Mankiewicz turned directly to the medical profession for an incisive look at doctors' manners, morals and ethics. Slickly written and directed, it had barbs but was tempered by an understanding of the basic philosophies of medicine. The doctor (Cary Grant) espoused some new ideas of medical care (including abolition of the age-old maxim that hospital patients be awakened at 5:30 a. m. for bath and breakfast). *People Will Talk,* however, failed to be a realistic picture of the medical profession, partly because of its over-sophistication, partly because of a profusion of eccentric characters.

No Way Out was an intolerant attack on racial intolerance in the medical profession and spoiled a story about a young colored intern, responsible for the death of a white patient, and his persecution by a pathological racist, when it proffered force and violence as the Negroes' "way out."

Films attacking the medical profession appeared coincidentally with the world-wide economic depression of the early '30s, although Lon Chaney's *The Penalty* (1920) and *A Blind Bargain* (1922) had hinted at professional incompetence and ethical shortcomings.

Sinclair Lewis' *Arrowsmith* (1931) was the first really serious film about medicine to come out of Hollywood. Sensitively directed by John Ford, and superbly acted by Ronald Colman and Helen Hayes, it touched delicately on some of the professional, economic and ethical problems of the American doctor by depicting the rise of a small-town physician and his conflict over whether to abandon his patients for a career in research.

In MGM's *Men in White* the medical profession experienced its first serious attack. The play, by Sidney Kingsley, presented a vicious picture of life in a metropolitan hospital. Professional incompetence, questionable medical ethics, hospital staff politics, and the implications of illegal abortion, were exploited irresponsibly. The film watered some of this down, but enough remained to constitute a militant attack on the M.D. Cinematically, *Men in White* was talky and slow moving, due largely to the stagy techniques of its director, Richard Boleslawski. It was one of the last films produced by Monta Bell, whose meteoric rise as a silent director (*The Torrent*) was followed by an equally rapid decline.

A Doctor's Diary (1937) was a derisive, savage attack on medical ethics, in which Sidney Blackmer, as a worldly surgeon, neglected a charity case in an emergency to pamper a wealthy patient. *Bedside, Internes Can't Take Money, Once a Doctor,* and *King's Row* also pictured some of the seamier sides of medicine and certain types of medical racketeering. As motion pictures, none was important and only *King's Row,* with its incisive characterization of an incompetent sadistic surgeon, enjoyed wide popularity. Less brutal, and more true to life, was Republic's *Doctors Don't Tell* (1941), a surprisingly good little film expertly directed by Jacques Tourneur.

Cinematically, the best of the "exposés" was MGM's *The Citadel,* produced in Great Britain in 1938. It recounted the story of an earnest young Scottish surgeon (admirably played by Robert Donat), who sets up practice in a poor Welsh mining community. Discouraged by poverty and distrust, he moves to London's stylish Harley street and embarks upon a career of fee-splitting and other hardened medical quackery. He—and medicine—are redeemed at the end when he is read out of the profession by his peers. Except for the contrived climax, *The Citadel* faithfully followed Dr. A. J. Cronin's novel and was perceptively directed by King Vidor.

In the mid-forties American medicine received another stunning blow in *Sister Kenny,* a screen biography of the Australian nurse whose controversial technique for the treatment of poliomyelitis had led to open warfare within medical circles. The film was hysterically partisan and cast organized medicine as a stupid, relentless menace adamant against any medical advance it had not itself developed. The distortions were implied rather than stated, and the one most repeated was that doctors denounced Sister Kenny and rejected her treatment. (In actual fact the Kenny technique was and is widely accepted as a *part* of polio therapy that is most effective when used in conjunction with other medical techniques, but it is not accepted as the whole or only treatment.) The film smothered the fact that Sister Kenny's results were no better than those usually obtained in recoveries and improvements by orthodox methods. Rosalind Russell, a close friend of the real Sister Kenny, and crusader for her cause, played the title role and is said to have badgered RKO Radio, against its wishes, into producing *Sister Kenny*. Dudley Nichols' direction was no better than his confused script.

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[2] *Nurse Edith Cavell* was a fine screen biography of the World War I British nurse accused of spying in Belgium and executed by the Germans.

As a runaway best-selling novel, Morton Thompson's *Not as a Stranger* shocked many by the viciousness of its attack on American medicine. Translated to the screen by Stanley Kramer, it is a powerful drama and cinematically competent, but the final evaluation of *Not as a Stranger* is yet to be made. It is not simply another "exposé" picture, and it is to Kramer's credit that the film has considerably less venom than the novel. Yet, many patently untrue things in the book have been retained. The characterization of the doctors is less venal, and Kramer has recognized that some doctors are honest and intelligent. *Not as a Stranger* probably presents more of the minutiae of medicine than any preceding film, but this does not compensate for its highly debatable anti-medicine propaganda. Finally, casting Robert Mitchum as the ruthless, insensitive but also idealistic young doctor was an unforgivable mistake.

What do doctors themselves think of the manner in which they have been portrayed on the screen?

The medical profession has resented the distortions in such films as *Men in White, Sister Kenny* and *Not as a Stranger*, and the focusing upon the seamier sides of medicine in *The Citadel*. Nevertheless, most doctors feel the excesses of the "exposé" picture are offset by the tributes of *A Man to Remember, Panic in the Streets* and *The Snake Pit*. The maliciously caricatured doctor (e. g., Frank Ferguson's obstetrician in *Caught*) has been rare.

Hollywood, usually attentive to such things, has tended to be careless about the authenticity of medical atmosphere. Alan Ladd in *And Now—Tomorrow* made doctors chuckle when, to relieve Loretta Young's deafness, he injected her with a self-developed and clinically untried drug. Barry Fitzgerald's supervision of his own appendectomy while under local anesthesia in *Welcome Stranger* was rightly regarded as ridiculous in the extreme. Dr. Kildare constantly amused doctors by his grave snap diagnoses (always right, of course) and the pompous manner in which he imposed them upon the venerable Dr. Gillespie (Lionel Barrymore). The classic was in *Young Dr. Kildare* when Ayres, picked from a line of newly graduated medical students, diagnosed Gillespie's cancer after a dozen top specialists had failed to do so. The Dr. Kildare films were also notorious for impressive but phony medical double-talk.

Doctors were convulsed when Joel McCrea operated on gangster Lloyd Nolan, who had been shot in *Internes Can't Take Money*, with some tools from a nearby bar—including an ice pick, lime juice and a jigger glass. And, of course, saved the day and Nolan.

Many plastic surgeons have watched open-mouthed the antics of their screen counterparts. In *The Stolen Face* Paul Henreid had no difficulty in surgically duplicating the face of his lost love on a disfigured prostitute (Lizabeth Scott played both roles to simplify casting). This fallacy that faces can be identically duplicated has been the gimmick in numerous films. Any plastic surgeon knows it can't be done.

Paul Henreid offended again in *The Scar*. After killing his double, a successful psychiatrist, he not only took over a lucrative psychiatric practice but had no difficulty in fooling his psychiatric colleagues as well. Henreid also destroyed credibility when he took a scalpel and duplicated a scar on his cheek (alas, on the wrong side). Despite these follies, *The Scar* managed to be rather engrossing entertainment.

Most doctors feel Hollywood has yet to produce a truly accurate picture of the medical profession, and they doubt such a film will ever be made. Overdramatizing, and capitalizing on "exposés," have been too successful in the past to be abandoned.

MEDICAL FILM REVIEWS

Blood Grouping: 16 mm., color, sound, showing time 22 minutes. Produced in collaboration with the Group Laboratories, Mile End Hospital, London, England. Procurable on loan from Imperial Chemical Industries (New York) Ltd., Film Library, 488 Madison Ave., New York 22.

This film is intended to show students and house officers some of the techniques used in routine blood grouping in the hospital laboratory. It is divided into the following sections: (1) ABO grouping using the tile method in which reactions of various blood groups are clearly shown; (2) ABO grouping by the tube method; (3) rhesus grouping using saline anti-Rh serum; (4) rhesus grouping using "incomplete" anti-Rh serum and cells suspended in bovine albumin; (5) rhesus grouping using "incomplete" anti-Rh serum diluted in bovine albumin; (6) a "rapid" modification for emergency use only is shown. A number of photomicrographs demonstrate the microscopic examination of the results obtained. This film probably meets the conditions in England much better than those prevailing in this country. There is evidence of economy that in this country would be considered as going too far and as being inconsistent with reliable results. This refers particularly to the use of one pipet for all solutions, including testing serums. It is assumed that rinsing the pipet in distilled water and then saline will get rid of all the serum present. In view of the fact that transfer of a minute amount of serum may lead to trouble, such technique may be subject to question. The same holds true for the use of one glass rod for mixing of the tests on the tile. It is true that wiping off the glass rod ought to remove the cells, but there is a possibility of transfer unless one is extremely careful. Some may criticize the statement that from the observation of weak agglutinations it is concluded that the cells were A$_2$ without further check. It would also be considered bad practice to limit the typing only to tests with known serums, without testing the unknown serums with known type cells. With due consideration to situations prevailing in Great Britain, the film is worthy of presentation to technicians, interns, and medical students.

Gout and Gouty Arthritis: 16 mm., color, sound, showing time 18 minutes. Prepared by John H. Talbott, M.D., Buffalo, and Alexander B Gutman, M.D., New York. Produced in 1954 by Worcester Film Corporation, Worcester, Mass., for and procurable on loan from Sharp & Dohme, Division of Merck & Co., Inc., West Point, Pa.

The purpose of this film is to teach current knowledge on the history, etiology, diagnosis, and treatment of gout and gouty arthritis with particular reference to the use of the uricosuric agent Probenecid. This is an excellent review of the modern treatment of gout. Special emphasis is placed on diagnosis, particularly the use of radioactive isotopes and their role in determining the pathogenesis of this disease. Use of newer drugs for the management of gout is also shown. The film points out that a patient whose condition is properly managed may lead a comfortable life even though not cured. The film is well produced and well organized; photography is excellent. It is recommended for the general practitioner and for students of gout.

Good Health Practices: Part I: 16 mm., color, sound, showing time 10 minutes. Produced in 1953 by and procurable on purchase ($90) from Avis Films, Inc., 904 E. Palm Ave., Burbank, Calif.

The purpose of this film is to instruct primary and elementary grade children in the basic good health practices of proper eating, toilet habits, cleanliness, and rest and sleep. The comparison between an engine's burning fuel and exhausting waste products and the human body's digesting food and eliminating waste is clearly drawn. The film's motivation is in the direction of keeping fit for fun, and the ideas suggested are in general good. However, many of the concepts outlined in connection with practices discussed are misleading, if not incorrect. For example, it suggests that people must regularly go to the bathroom morning and night or oftener. It also advises washing all over daily as an essential health practice. The setting is so elaborate that many children would have difficulty identifying themselves with the situations and subjects. In closing scenes the girl is much too mature for her age. The film needs many revisions to be recommended for classroom use. The color photography is excellent.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Pentolinium and Hexamethonium Combined with Rauwolfia in the Treatment of Hypertension. E. Dennis, R. Ford, R. Herschberger and J. H. Moyer. New England J. Med. **253**:597-600 (Oct. 6) 1955 [Boston].

Of 109 patients with hypertension treated as outpatients, 75 (group 1) who had previously received Rauwolfia serpentina and hexamethonium for three months or more were changed from therapy with Rauwolfia combined with hexamethonium to Rauwolfia combined with pentolinium tartrate (Ansolysen). The remaining 34 patients (group 2) received Rauwolfia combined with pentolinium tartrate from the outset of treatment. Both hexamethonium and pentolinium tartrate were administered by a titration method, i. e., therapy was begun with small doses of the ganglion-blocking agent and then continued with increased doses until an optimal reduction of blood pressure was obtained or side-effects prohibited further increase in dosage. By contrast, Rauwolfia compound was given as a fixed dose of 2 mg. of reserpine, 8 mg. of alseroxylon, or 400 or 500 mg. of whole Rauwolfia root per 24 hours, usually administered in divided doses with meals and at bedtime. Of the 75 patients in the first group, 57 (76%) were responsive to the combined treatment with Rauwolfia and hexamethonium, and 59 (79%) were responsive to the combined treatment with Rauwolfia and pentolinium tartrate. The comparable response rates indicate the similarity of effect between hexamethonium and pentolinium tartrate. The average daily dose of hexamethonium for all patients who were responsive was 2,307 mg., in comparison to an average daily dose of 341 mg. of pentolinium tartrate, suggesting that milligram for milligram pentolinium tartrate is six or seven times more potent than hexamethonium. Of the 34 patients in group 2, 32 (94%) were responsive to the combined treatment with Rauwolfia and pentolinium tartrate. Of the total of 109 patients treated with Rauwolfia and pentolinium tartrate, 91 (83%) responded to this treatment with a reduction of 20 mm. Hg or more in the mean arterial pressure, taken in the upright position; 39 (36%) were normotensive in the upright position. Untoward side-effects, attributable to ganglionic blockade, were similar in frequency but less intense with Rauwolfia combined with pentolinium tartrate than with Rauwolfia combined with hexamethonium.

Drug Therapy (Rauwolfia) of Hypertension: I. Pharmacodynamics of Rauwolfia. J. H. Moyer. A. M. A. Arch. Int. Med. **96**:518-529 (Oct.) 1955 [Chicago].

Reviewing the pharmacodynamics of the administration of Rauwolfia compounds to laboratory animals and to patients with hypertension, the author found that there is no experimental evidence to indicate that Rauwolfia extracts differ qualitatively in their pharmacological activity. They seem to reduce the blood pressure both in animals and in patients with hypertension by central suppression of vasoconstrictor impulses, thus decreasing the outflow of vasoconstrictor impulses over the sympathetic nervous system to the arterioles. The reduction in blood pressure is primarily due to peripheral vasodilatation, since cardiac output is not altered significantly, even though the heart rate usually decreases. The rauwolfia compounds are sedatives that reduce anxiety with a minimum amount of soporific effects. This response is usually lost after two to three months of continuous drug administration, and in a small percentage of patients may actually be replaced by anxiety and insomnia due to the drug. In laboratory animals there is little effect on renal hemodynamics, whereas, in patients with hypertension, the glomerular filtration rate is slightly reduced as the blood pressure decreases following parenteral administration of reserpine, but after prolonged oral administration no consistent effect has been seen.

Drug Therapy (Rauwolfia) of Hypertension: II. A Comparative Study of Different Extracts of Rauwolfia When Each Is Used Alone (Orally) for Therapy of Ambulatory Patients with Hypertension. J. H. Moyer, E. Dennis and R. Ford. A. M. A. Arch. Int. Med. **96**:530-543 (Oct.) 1955 [Chicago].

The authors report comparative studies on Rauwolfia. An attempt is made: (1) to compare the clinical results obtained with single, pure alkaloids of Rauwolfia serpentina (e. g., reserpine and Rescinnamine) and those obtained with preparations containing multiple active alkaloids (e. g., alseroxylon, Roxinil, or whole root) and (2) to determine, if possible, the type of case for which these agents are particularly suited. Studies were made in 346 patients with hypertensive vascular disease. Most of them were treated as outpatients, and they were observed during a control period of from one to three months before treatment was begun. All patients received placebos during the control period. Roxinil was given to 40, alseroxylon to 118, whole root Rauwolfia to 42, reserpine to 62, and Rescinnamine to 84 patients. There was no significant difference, quantitatively or qualitatively, in the hypotensive action of the five products studied. In comparing the potency of the various preparations, the studies indicated that 1 mg. of reserpine is equivalent in hypotensive activity to 250 mg. of crude root, which is lower than the 1:1,000 ratio reported by Wilkins. One milligram of reserpine manifests hypotensive activity equivalent to 4 mg. of alseroxylon. This is consistent with the fact that 4 mg. of alseroxylon contains the active alkaloids extracted from 250 mg. of Rauwolfia serpentina root of average potency. Rescinnamine is slightly less potent than reserpine. All of the Rauwolfia preparations had a slow onset of action. Reserpine appears to be somewhat more rapid than the other preparations. The side-effects of the five agents were qualitatively similar, but quantitatively there were minor differences.

Clinical Aspects of Tumor Formation in the Thorax. W. Unverricht and V. Obrecht. Ärztl. Wchnschr. **10**:869-872 (Sept. 23) 1955 (In German) [Berlin, Germany].

The authors review the records of 100 patients who were either referred to their clinic with a diagnosis of intrathoracic tumor, or in whom such a diagnosis was considered or made in the course of the clinical examination. Sixty-six of the 100 patients were referred to the clinic with the diagnosis of intrathoracic tumor, and in 48 of these this diagnosis was corroborated. Of the 34 patients who were referred with a diagnosis other than tumor, 26 were found to have tumor. The fact that some of these patients had been treated for weeks, months, or even years and that in many the tumor was already inoperable when a diagnosis was finally made emphasizes that greater efforts must be made to establish the diagnosis of bronchial carcinoma earlier. Particularly in patients between the ages of 50 and 60 any disease of the respiratory organs should be regarded as possible tumor until this diagnosis has been definitely ruled out. The presence of tubercle bacilli in the sputum does not necessarily speak against a tumor, since, on the one hand, tumor may coexist with tuberculosis and, on the other hand, the sputum may temporarily contain tubercle bacilli without activation of a pulmonary tuberculosis. An exploratory thoracotomy should

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The place of publication of the periodicals appears in brackets preceding each abstract.

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be done early in all cases in which the diagnosis cannot be established, for when a tumor becomes roentgenologically demonstrable it may already be in an inoperable stage. Although the results of surgical treatment are still rather modest, it is the only treatment that is at all promising for patients with pulmonary tumor. The authors obtained no decisive effects with irradiation; on the contrary such treatment usually caused undesirable complications. Treatment with so-called cancer serums and with biological methods likewise has proved disappointing.

Examination of Gastric Acidity Without Stomach Tube: Determination of Quinine Excretion in Urine After Administration of Insoluble Quinine Compound. J. W. Boersma. Nederl. tijdschr. geneesk. 99:2564-2568 (Aug. 27) 1955 (In Dutch) [Haarlem, Netherlands].

The author calls attention to the tubeless method of ascertaining gastric acidity, which was described by Segal and associates in 1950 and in 1953. He reports his own experience with this method in several groups of patients. Since orally ingested quinine can be detected in the urine for about a week, the patient should not receive compounds containing quinine for this number of days before the test. After fasting since 8 p. m., the patient is given the following morning a subcutaneous injection of histamine, in order to stimulate gastric secretion. The urine, which the patient voids 30 minutes later, serves as a control. Then the patient is given the insoluble quinine compound in water (now generally quinine carbonate). The urine that the patient voids two hours later is examined for the total quinine contents. The author reports the quantities of quinine detected in the urine of several groups of patients. The outcome of the quinine carbonate test was compared with acidity determinations on fractional gastric aspiration. The quinine test was found to be reliable for differentiating between achlorhydria and subnormal and normal secretion of free hydrochloric acid. The quinine test is less laborious and less unpleasant for the patient than fractional gastric examination.

Chronic Nonspecific Granulomatous Inflammation of the Stomach, Duodenum and Intestine. A. Richman, H. D. Zeifer, A. Winkelstein and others. Gastroenterology 29:358-369 (Sept.) 1955 [Baltimore].

Nonspecific granulomatous inflammation of the ileum, as described by Crohn and called regional ileitis, was at first considered to be limited to the terminal ileum. It is now apparent that this disease may involve the gastrointestinal tract from esophagus to rectum. The suggestion has been made that granulomatous inflammations represent a reaction of the gastrointestinal tract to stress and that each segment of the tract may participate. The literature reports 14 cases in which the duodenum and/or the stomach were involved, with or without more distal disease. These 14 cases plus 3 new ones, whose histories are presented, are analyzed. The 17 patients ranged in age from 9 to 62 years. On the basis of the clinical patterns, the patients are classified into four groups. In group 1, distal disease was followed by proximal disease; in group 2, proximal disease was followed by distal disease; in group 3, proximal and distal disease were discovered simultaneously; and in group 4, disease was limited proximally to the stomach or duodenum with or without jejunal involvement. This last category was the most common variant and included one patient with esophageal involvement in addition to disease in the stomach and duodenum. In this patient the disease took a fulminating course with duodenal perforations, hemorrhage, and fatal outcome. There were four fatalities in the 17 patients, two of which occurred shortly after resection of the diseased stomach or duodenum. The two other patients died of recurrent disease one and two years after surgery respectively. The three patients whose histories are reported here have done well so far. Although gastric and duodenal disease develops in relatively few patients with regional enteritis, the appearance of gastric symptoms should suggest the presence of disease in the stomach and duodenum. In all three of the cases observed by the authors, surgical treatment became necessary, but they hope that, as their experience increases, some patients will respond to nonsurgical measures.

Frequency of Diabetes in Acute and Chronic Pancreatitis and in Carcinoma of Pancreas. R. Llamas and A. Vélez Molina. Rev. invest. clín. 7:143-156 (April-June) 1955 (In Spanish) [Mexico, D.F., Mexico].

Sixty-three patients with disease of the pancreas were observed in the Hospital de Enfermedades de la Nutrición of Mexico City. In the group of five patients with acute pancreatitis, the diagnosis was made by a laparotomy in three cases. The values for blood amylase were high in all five patients. One patient had diabetes and four had biliary lithiasis. In the group of 21 patients with chronic pancreatitis, the diagnosis was made at operation or at autopsy in 17 patients. Eleven patients had diabetes mellitus, and eight of these had pancreatic calcifications. There was a diabetic glucose tolerance curve in one patient. In the group of 37 patients with pancreatic carcinoma, the diagnosis was made at laparotomy or at autopsy in all cases. Ten patients had diabetes mellitus. In 11 cases the carcinoma was located in the head of the pancreas. Chronic pancreatitis or diffuse fibrosis was observed in nine of these patients, seven of whom had diabetes mellitus. The findings suggest that fibrosis and chronic pancreatitis may play an important etiological role in the development of diabetes mellitus complicating pancreatic carcinoma.

Whereto Tuberculosis? The First Seven Years of the Antimicrobial Era, 1947-1953. G. J. Drolet and A. M. Lowell. Am. Rev. Tuberc. 72:419-452 (Oct.) 1955 [New York].

Streptomycin, aminosalicylic acid, and isoniazid, though discovered and brought into use only a few years ago, have already given life to hundreds of thousands of tuberculous patients throughout the world. Streptomycin, the first of the antituberculous drugs, became generally available primarily in 1947; aminosalicylic acid, which was developed abroad, came to hand here in 1949; and finally, in 1952, the general use of isoniazid became possible. The treatment of tuberculosis before 1947, when the chemotherapeutic era began, largely depended on bed rest and collapse therapy, and the case fatality rates had shown but little improvement for more than 20 years. The next seven years, on the other hand, saw the most rapid decline ever recorded in deaths from tuberculosis, with a fall in the death rate ranging from 53% in France to 83% in Iceland, as shown by official statistics obtained from 15 countries and the commonwealth of Puerto Rico. Morbidity reports show a lesser rate of reduction, with a case rate that is now 20% lower, in five of these countries and the commonwealth of Puerto Rico, but actually higher than before in Eire and possibly also in Australia. Care must be used in interpreting the Irish statistics, because the higher level of tuberculosis case rates and mortality is due partly to the fact that Irish industrialization and modern development are of comparatively recent origin and partly to the fact that many of the Irish workers who were employed in England during World War II had marked susceptibility to tuberculosis and later carried the disease home with them. The rate of progress, however, though starting from a higher level of prevalence, has been similar to that in Scotland and England, with a reduction of 12% in the case rate and 68% in the death rate between 1947 and 1953. The third and last index that may be used with reference to the prevalence of tuberculosis is the extent of infection as revealed by tuberculin tests. The results obtained by such tests in various parts of the world show that boys and girls at age 15 still react positively at rates ranging from 12% in Lebanon or 18% in rural Eire to 85% in Polish cities. The favorable condition now prevailing in the United States may be judged by the fact that 95% of some 150,000 recruits in the United States Navy and Marine Corps reacted negatively to the tuberculin test in 1954. These advances in the fight against tuberculosis must not be taken to mean that the disease is no longer a major health problem. The number of new cases reported in the United States, the British Isles, France, and Germany in 1953 alone totalled 340,416 and, if the number of old and previously known cases (conservatively estimated at three times the new cases) is added to these, it will be seen that there were more than one million known cases of active tuberculosis in just those four countries in that year.

The Prophylaxis of Penicillin Reactions with Chlorprophenpyridamine Maleate Injection 100 Mg. per Cubic Centimeter. D. B. Frankel and R. E. Stutsman. Ann. Allergy **13**:563-570 (Sept.-Oct.) 1955 [St. Paul].

The incidence of penicillin reactions varies from 2 to 16%. Dermatitis, urticaria, and serum sickness are among the most frequent, but the most severe is anaphylaxis, and the greatest danger lies in death from shock. In the United States there are 200 anaphylactoid reactions due to penicillin every year, and many of these reactions result in death—usually within 5 minutes after injection. While there is no certain way of predicting when severe or fatal reactions are likely to occur, a method has been found that greatly reduces their incidence and permits the administration of penicillin to individuals known to be sensitive to it. This method is the administration of an antihistamine in conjunction with penicillin. It was first described by Simon in 1952, who used it in over 5,000 cases and reduced the incidence of penicillin reactions to 0.72%. The authors gave 540 injections of penicillin combined with chlorprophenpyridamine maleate to patients without previous signs of sensitivity to penicillin. The dose of chlorprophenpyridamine maleate was 20 mg. or 0.2 cc., withdrawn from a vial containing 100 mg. of the antihistamine in each cubic centimeter. After the antihistamine was drawn into the syringe, 600,000 units of aqueous penicillin were added. The syringe was rotated to insure adequate mixture, and the injection made in the usual manner. No reactions occurred in these 540 injections. There were likewise no reactions in 29 injections of 600,000 units of penicillin with 40 mg. chlorprophenpyridamine maleate in 15 known reactors or in 5 injections of 600,000 units of penicillin with 40 mg. of chlorprophenpyridamine maleate in 4 indefinite reactors. No side-actions attributable to the antihistamine were noted. Three definite and three indefinite reactions occurred among 583 injections of penicillin alone in patients not known to be sensitive to penicillin, an incidence of 1.03%. The severe reactions were angioedema and serum sickness. These favorable results have led to the suggestion that chlorprophenpyridamine maleate solution be administered with each dose of penicillin for the prophylaxis of sensitivity reactions.

Phlebitis: A Study of 748 Cases at the Boston City Hospital. J. J. Byrne. New England J. Med. **253**:579-586 (Oct. 6) 1955 [Boston].

Of 748 patients with phlebitis admitted to the Boston City Hospital over the past decade, 621 (83%) were over 40 years of age. The mortality increased with age. No seasonal variation could be found. The conditions predisposing to phlebitis in order of frequency were cardiac disease, postoperative state, trauma, infection, varicose veins, childbirth, hemiplegia, cancer, and miscellaneous conditions. No predisposing disease whatsoever apparently occurred in 49 patients (65%); the cause of phlebitis in this group of patients with spontaneous or idiopathic phlebitis could be related to minor trauma or effort. Fatal pulmonary emboli occurred frequently in phlebothrombosis and thrombophlebitis. It is misleading to consider these two conditions as separate entities, because, although its manifestations may vary, all phlebitis is essentially the same process. The mortality rate with the various methods of treatment was as follows: of 347 patients who received conservative treatment, 128 (37%) died; 369 patients were given surgical treatment, with 8 deaths (2.1%); 32 patients were treated with anticoagulants and 9 died (29%). Of 144 patients with fatal pulmonary emboli resulting from preexisting phlebitis, the first embolus was fatal in 122 (84%). Phlebitis, therefore, should be actively treated before embolization occurs. Bilateral division of the superficial femoral veins should be performed as soon as the diagnosis of phlebitis is made. If there are thigh signs (edema, tenderness, and evidence of trauma), the common femoral vein should be divided. When clots are adherent or difficult to extract, further treatment (anticoagulants or ligation of the vena cava) is indicated. The postphlebitic syndrome is associated with the severity of the phlebitis rather than the type of treatment.

Indefinitely Prolonged Chemotherapy for Tuberculosis: An Appeal. A. S. Dooneief, K. E. Hite and R. G. Bloch. A. M. A. Arch. Int. Med. **96**:470-477 (Oct.) 1955 [Chicago].

Pulmonary tuberculosis may relapse even if there have been no symptoms or signs of activity for years. After abrupt reactivation, the disease may become quiescent again. The incidence of reactivation or relapse prior to chemotherapy ranged from 24% to more than 50% in patients followed for more than 20 years after arrest of the disease. There are increasing indications that antimicrobial therapy for short periods of time does not prevent late relapse after chemotherapy has been terminated. Even after surgical excision of all visible lesions, active disease may become evident in other parts of the lungs or the bronchial tree. Reliable prediction of which patients will remain well after termination of treatment is difficult because of lack of reliable criteria for inactivity of residual lesions. The authors found that, of a consecutive series of 172 patients, in whom chemotherapy was continued indefinitely after discharge from the hospital, 98.3% showed no relapse after 12 to 45 months of drug treatment. Drug intoxication was never severe enough to necessitate cessation of treatment. With the aid of placebos, the symptoms of streptomycin intoxication were demonstrated to be due, in part at least, to psychic factors. There was no correlation between the duration of treatment with streptomycin and the occurrence of streptomycin intoxication. Prolonged therapy with various combinations of streptomycin, aminosalicylic acid, and isoniazid proved practicable, relatively devoid of serious toxic reaction, and generally acceptable to properly indoctrinated patients. Since the optimal duration of drug treatment is not presently known, the authors believe that chemotherapy under close supervision should be prolonged indefinitely except in the presence of threatening side-effects or until a reliable guide to termination of chemotherapy becomes available.

Pathogenesis of Anemia in Tuberculosis. P. Miescher, O. Gsell and B. Fust. Schweiz. med. Wchnschr. **85**:917-919 (Sept. 20) 1955 (In German) [Basel, Switzerland].

Patients with a disseminated tuberculosis frequently have anemia. The pathogenesis of this form of anemia is usually regarded as being due to a disturbance in the hematopoiesis. This disturbance is believed to be caused by an iron deficiency in the bone marrow, which in turn has been brought on by the tuberculosis and by the toxic action of the infection on the hematopoietic organs. The authors raised the question whether an increased destruction of erythrocytes might be an additional factor in the pathogenesis of this anemia. This possibility interested them, because disseminated tuberculosis is accompanied by a considerable reactive hypertrophy of the reticulohistiocytic apparatus, that is, of those tissues that play the most important part in the catabolism of the cellular elements of the blood. They investigated the life span of homologous erythrocytes that had been tagged with radioactive chromate in healthy and in tuberculous guinea pigs. The tuberculous guinea pigs had been injected intraperitoneally with tubercle bacilli of human type. The life span of the erythrocytes was significantly shorter in the tuberculous than in the normal guinea pigs, and the authors deduce from this observation that the accelerated breakdown of erythrocytes plays a part in the pathogenesis of the anemia that accompanies tuberculosis. The fact that the number of reticulocytes was increased in the tuberculous animals seems to indicate that the bone marrow strives to compensate for the increased breakdown by an augmented erythropoiesis. The observation that the reticulohistiocytic system hypertrophies in experimental tuberculosis and that the granulopectic effect of this system is increased justifies the assumption that the augmented destruction of erythrocytes is caused by an increase in the cytoclastic activity of the reticulohistiocytic system.

Corticotrophin and Cortisone in the Treatment of Scleroderma. M. M. Zion, B. Goldberg and M. M. Suzman. Quart. J. Med. **24**:215-227 (July) 1955 [Oxford, England].

This report deals with the use of cortisone and corticotropin in 14 patients with scleroderma. The ages ranged from 23 to 70 years, and there was an equal number of men and women. In nine patients scleroderma was associated with peripheral vascular disturbances of the Raynaud type; in the remaining five there were no vasospastic phenomena. In one of the former and one of the latter group, the sclerodermatous changes were confined to the hands, but, in the remainder, there was more generalized involvement of the skin. Six patients had evidence of visceral involvement. The duration of the symptoms of scleroderma prior to the onset of treatment with corticotropin or cortisone varied from three months to 12 years, and seven patients had previously received other forms of therapy. In all the patients, the diagnosis of scleroderma was confirmed by histological examination of a biopsy specimen of skin, and the following investigations were made prior to treatment and repeated at intervals during therapy: radiography of the chest, esophagus, gastrointestinal tract, skeleton, and soft tissues of the limbs; electrocardiography; blood counts and estimations of the erythrocyte sedimentation rate; serum-protein estimations; several liver function tests; and the differential sheep-cell agglutination test. From the results obtained in these 14 patients, it appears that the response of scleroderma to cortisone or corticotropin varies in degree from striking benefit to no effect. Four patients obtained moderate to marked improvement; in one of these there was clinical and histological reversal to normal. Nine patients obtained slight improvement; one patient obtained no improvement. In the patients who showed marked or moderate improvement, the disease before treatment had existed less than six months. The best results were obtained in patients who had no peripheral vascular disturbance. When treatment was temporarily discontinued, it proved impossible to maintain the improvement. Treatment has been continued for periods up to two and a half years and is being continued longer in patients who have improved, in the hope that progression of the disease may be prevented.

First Observations on the Action of Yeasts in Leukemias. G. Protti. Tumori 41:273-288 (May-June) 1955 (In Italian) [Milan, Italy].

The author's in vitro studies on blood cells of patients with leukemia indicated that myelocytes and lymphocytes undergo marked alterations (cytolysis) when they are placed in contact with strains of yeast. The normal blood elements are not altered, however. These results induced him to administer yeasts by the intravenous route to patients with leukemia. A 33-year-old man with chronic myeloid leukemia received 60 mcg. of yeast (Rhodotorula rubra and others) daily after he had been given P^{32} for 14 months. His white blood cell count was 190,000 per cubic millimeter and his spleen was enormous. After nine days, the spleen was decreased by 5 cm. but the white blood cell count had reached a peak of 260,000 per cubic millimeter; four months later it was 60,000. The patient continued to improve; he regained appetite and weight (7 kg. [15.4 lb.] in the first month of therapy) and energy; his abdomen became normal; there was a further decrease in the size of the spleen; and the pain in the bones that had rendered him unable to walk disappeared. A state of well-being, such as he had not experienced for years, lasted for several weeks. Suddenly, about four months after the start of therapy, the patient complained of a shooting lumbar pain to the left side (it was probably of infarct origin); his condition deteriorated rapidly; and he died from generalized sepsis about one month later. Yeast therapy with Cryptococcus albidus and other strains in daily doses of 60 mcg. was given to a 51-year-old man with lymphatic leukemia who had been receiving cortisone but who no longer responded to the hormone. His condition improved; he gained appetite and weight (3 kg. [6.6 lb.] in two months); the spleen and liver became smaller; and the subcutaneous lymphomas became tender and decreased to about one-half their pretreatment size. This therapy was also given to a 61-year-old man with lymphatic leukemia who had received P^{32} with good effects for five years but who no longer responded to it. The minimum daily dose he could tolerate was 2 mcg. A dose of 200 mcg. over a three-month period influenced favorably his general condition and the size of the spleen. The results were superior to those brought about by P^{32} therapy. At the time of writing, improvement was still present in the last two patients. The intravenous administration of yeasts had no effect on the condition of five patients with acute monocytic leukemia and one with subacute leukemia. The mechanism of action of yeasts on neoplastic cells is not known. The fact that they affect only neoplastic cells suggests the hypothesis that they must act on a certain substance that is present in such cells only. The nature of this substance is being investigated.

The Use of Myleran in the Treatment of Chronic Myelocytic Leukemia. A. Haut, S. J. Altman, G. E. Cartwright and M. M. Wintrobe. A. M. A. Arch. Int. Med. 96:451-462 (Oct.) 1955 [Chicago].

The sulfonic acid ester, Myleran (1:4-dimethanesulfonyloxybutane), which was introduced for the treatment of chronic myelocytic leukemia, appeared to be so promising that the authors decided to publish a full account of their own experience with it. Since November, 1952, they used Myleran in the treatment of 16 consecutive cases of chronic myelocytic leukemia. Eleven patients had received no previous therapy; five had been treated earlier with x-rays, nitrogen mustard, triethylene melamine, or radioactive phosphorus. The period of observation since Myleran was first prescribed is more than two years in six cases and more than one year in three other cases. Myleran was administered to 16 patients for a total of 40 courses of treatment. To date, 16 first courses of treatment, as well as 10 second, 6 third, 5 fourth, 1 fifth, and 1 sixth course have been completed. Symptomatic improvement, normalization of the blood findings, and reduction or even disappearance of splenomegaly was achieved when the drug was administered in daily oral doses of from 4 to 6 mg. Remissions continue in some patients for 6 to 12 months. The duration of therapy depends upon the individual response and generally can be expected to be about 40 to 90 days, the longest periods being required in patients with the highest initial leukocyte counts. Weekly to triweekly examinations of the patient and his blood suffice to guide the therapy and, in most cases, to avoid the complications of thrombocytopenia and pancytopenia, which are considered to be the result of excessive dosage.

Thyroid Function Following Hypophysectomy in Man. M. C. Li, J. E. Rall, J. P. MacLean and others. J. Clin. Endocrinol. 15:1228-1238 (Oct.) 1955 [Springfield, Ill.].

This report deals with the effect of hypophysectomy in 35 cases of metastatic cancer. The operation was performed by a transfrontal approach in most of the cases. Completeness of hypophysectomy was evaluated on the basis of (1) disappearance of urinary gonadotropin, (2) occurrence of adrenal crisis upon withdrawal of cortisone, and (3) postmortem examination, when possible. On the basis of these criteria, 28 of the 35 patients were considered to have had complete hypophysectomies and 7, partial hypophysectomies. The changes in the thyroid function with which this study is concerned were well correlated with the foregoing criteria. Within four weeks after total hypophysectomy, values for serum protein-bound iodine and thyroidal I^{131} uptake fell to myxedema levels. Clinical hypothyroidism developed within four to eight weeks after total hypophysectomy in 26 of the 28 patients. The serum protein-bound iodine level and the thyroidal uptake of I^{131} either fell transiently or did not change in the patients with incomplete hypophysectomy. The thyroid was examined histologically in six cases; atrophy with fibrosis was observed in two, and a slight decrease in the height of the follicular epithelial cells was observed in the other four cases.

SURGERY

An Evaluation of the Treatment of Cancer of the Breast at the University of Edinburgh (Scotland), Under the Direction of Dr. Robert McWhirter. L. V. Ackerman. Cancer 8:883-887 (Sept.-Oct.) 1955 [Philadelphia].

Of 1,882 patients with presumed carcinoma of the breast who were treated by McWhirter with simple mastectomy followed by irradiation therapy at the Royal Infirmary of the University of Edinburgh, Scotland, between 1941 and 1947, 786 were living at the fifth year after treatment. Ackerman studied the clinical records and the pathological specimens of 719 of these patients and reached the following conclusions. Thirteen of these patients did not have cancer. Most of the erroneous diagnoses were made in patients with intraductal papilloma. This degree of error, however, will not appreciably change the end-results. The evaluation of the end-results obtained with McWhirter's therapy was complicated by the fact that at least 220 patients received immediate ovarian sterilization after the simple mastectomy, regardless of the stage of the disease or the age of the patient. Therefore, this group cannot be compared with a group treated purely by surgery. The evaluation was further complicated by the fact that excision of involved lymph nodes, diethylstilbestrol therapy, or testosterone therapy was used whenever there was manifest persistence of the disease. Such treatment could have modified survival time. Of the 719 patients, 555 had cancer in the operable stages 1 and 2, and in 90 of these there was local persistence of the disease, a persistence rate of 16%, which is higher than in properly selected operable cases. The incidence of local persistence in the group of patients who died before the fifth year is not known. McWhirter did not demonstrate histological proof of sterilization of carcinoma in lymph nodes; in fact, involved nodes removed after irradiation therapy appeared unaffected in several instances. There was considerable morbidity from McWhirter's irradiation therapy, and 47 patients had severe changes that necessitated amputation of the arm in 3. It must be stressed that, although a number of patients survived five or more years after therapy was begun, 203 died after five or more years, an additional 44 are in a dying state, and still more will die of cancer. McWhirter feels that when a surgeon dissects the axilla he spreads cancer, but McWhirter did not present objective evidence as to the necessity for simple mastectomy. In fact, simple mastectomy may well spread cancer because the surgeon is cutting through tumor tissue. In patients properly selected for radical mastectomy, the trained surgeon only rarely enters the field of cancer in the breast and/or axilla, and the chance of spread is reduced to a minimum. These facts suggest that McWhirter has not put in jeopardy the well-planned radical mastectomy for the patient with operable cancer of the breast. The author believes that, if patients are properly selected for radical mastectomy and operated on by the trained surgeon, this method of treatment must yield, in this group, the greatest number of permanently cured patients.

Malignant Melanoma: Clinical and Pathologic Analysis of 93 Cases: Is Prophylactic Lymph Node Dissection Indicated? R. H. Lund and M. Ihnen. Surgery 38:652-659 (Oct.) 1955 [St. Louis].

The authors state that at their hospital they performed regional lymph node dissections in malignant melanoma only when the clinical impression indicated involvement by metastatic tumor. This study is based on experience gained in treating 93 patients with malignant melanoma of the skin. Factors found to influence the prognosis included the size, the palpability of the regional lymph nodes, the depth of invasion, and the location of the melanoma. Tumors smaller than 2 cm. in diameter were associated with greater longevity than were the larger lesions. A clinical impression of metastases to the regional lymph nodes was nearly always correct and was associated with an extremely poor prognosis. Patients with tumors restricted to the very superficial dermis had a much higher survival rate than those with deeper invasion. Those with melanomas of the head and neck and upper extremities had higher survival rates than those with melanomas of the trunk and lower extremities. Sex, age, and degree of pleomorphism were found to have no influence on the prognosis. The five-year survival rate after wide local excision alone was 38.9%. Twenty-seven patients in this series, in whom nodal metastasis was definitely proved, were subjected to regional node dissections; they had a five-year survival rate of 14.8%. The authors feel that, while this analysis cannot supply a definite answer to the question of advisability of prophylactic dissection of the regional lymph nodes, there is suggestive evidence that earlier dissection of the lymph nodes might have been beneficial. They are of the opinion that prophylactic dissections are indicated if the regional lymph nodes are in predictable and accessible areas.

Surgical Parotitis, A Vanishing Disease. J. R. Robinson. Surgery 38:703-707 (Oct.) 1955 [St. Louis].

This is a review of 32 cases of acute parotitis developing after surgical procedures at Barnes Hospital, St. Louis, from 1921 through 1952. The pathogenesis of this disease is still obscure. There are four possible portals through which bacteria may gain entry into the gland: (1) the lymphatics; (2) the blood stream; (3) the parotid duct; and (4) direct extension from contiguous tissues. The dry mouth appears to be an associated, if not a causative, factor; saliva does not flow properly. Saliva contains mucin, which has a bacteriostatic effect. Presumably, when it ceases to flow, the organisms of the mouth are able to ascend the duct. In order to test the contention that parotitis is a vanishing disease, this series of 32 cases was divided into time periods, corresponding to those in which distinct changes in postoperative surgical management were made. Period 1 includes the years 1921 through 1927; it is the control for the other groups. The second group includes the years 1928 through 1937 and represents a period when much attention was being paid to aseptic intestinal anastomoses, fluid balance, and intestinal decompression by intubation during gastrointestinal surgical procedures. During this era the mortality rates attending colonic and gastric operations were greatly reduced. The third period represents the "sulfa" era and includes the years 1938 through 1942. During this time the sulfonamide drugs were used extensively to treat infection and to prepare the gastrointestinal tract. The fourth period, 1943 through 1952, is the antibiotic era. This decade started with the introduction of penicillin during 1943. During the first of the four periods, eight cases of surgical parotitis occurred in 21,735 admissions, that is, the incidence was 3.68 per 1,000. During the other three periods the incidences were 3.34, 1.82, and 0.17 per 1,000. These figures indicate that surgical parotitis has practically disappeared as a morbid and lethal postoperative complication. The mortality from this entity began to fall before the advent of antibiotics, such as sulfonamides and penicillin, while the incidence did not decline until they were introduced. The mortality from the disease was definitely lowered by x-ray therapy.

The Latissimus Dorsi Syndrome. R. J. Dittrich. Ohio M. J. 51:973-975 (Oct.) 1955 [Columbus, Ohio].

A symptom complex characterized by pain in the upper portion of the body, and designated as "latissimus dorsi syndrome," is described in four men between the ages of 26 and 62 years. The mechanism is one of referred pain and referred tenderness from a primary source, or trigger point, to other somatic structures that are innervated by the same spinal segmental nerves as those in which the impulses arise. In this disorder, the noxious stimuli originate from an irritation of portions of the aponeurosis of the latissimus dorsi muscle in the midlumbar region over the lateral portion of the sacrospinalis muscle. The vulnerability of this site is due to the anatomic arrangement of attachment of a portion of this muscle to the lumbodorsal fascia. Diagnosis of a mechanism of this nature is relatively simple. It may be suspected in any painful condition that is located in the sclerotomes of the sixth, seventh, and eighth cervical nerves from which the latissimus dorsi muscle receives its nerve supply, and it is not explainable by local pathological disorders. Tenderness over the lateral portion of the sacrospinalis muscle at the level of the second or third lumbar vertebra makes the diagnosis more certain. The sensitivity at this site may be so trivial that comparison with the normal side of the body becomes necessary. The final step in arriving at the diagnosis is local anesthetization of the site of origin of the pain, noting the response to this procedure. If, with this procedure, complete or substantial relief is obtained, as it was in all four of the author's patients, it may be concluded that afferent stimulation at this site induces referred pain to upper portions of the body, and surgical correction is indicated. This was performed in three of the four patients and consisted of resection of a narrow strip of the aponeurosis of the latissimus dorsi in the lumbar region above the level of the irritation. Relief from pain was prompt, and there was no recurrence during a period of observation of from 3 to 13 months. In the fourth patient surgical correction was advised but not accepted.

Intrasplenic Pressure Measurements in the Evaluation of the Results of Porta-Caval Anastomosis. M. Atkinson, S. Sherlock and M. D. Turner. Gastroenterology **29**:370-376 (Sept.) 1955 [Baltimore].

Advances in the surgical treatment of portal hypertension have accentuated the need for accurate methods of assessment of results. With regard to intrasplenic pressure measurements, the authors point out that the tip of the needle introduced into the spleen will probably lie in the splenic pulp, which is in free communication with the splenic venules. Therefore, intrasplenic pressure is closely related to the portal venous pressure measured directly or by occluding a hepatic vein. The intrasplenic pressure is slightly higher than the portal venous pressure, as would be expected from the direction of the flow in the portal system. In patients without portal hypertension, the intrasplenic pressure was found to be 3 to 17 mm. Hg, with a mean of 10 mm. Hg. A statistically significant linear correlation between the intrasplenic pressure and the estimated portal venous pressure was observed in 24 patients. The intrasplenic pressure exceeded the estimated portal venous pressure by 2 to 6 mm. Hg; the higher the pressure the greater this difference. The authors describe intrasplenic pressure measurements in seven patients in whom a portacaval anastomosis had been made for the treatment of bleeding from gastroesophageal varices. Six of the seven had portal cirrhosis, and the seventh had occlusion of the portal vein by intrahepatic scar tissue. Five of the patients showed a significant fall in the intrasplenic pressure to normal and near normal levels, and there was other evidence that the anastomosis was functioning well. In the sixth patient, ascites developed after the shunt operation, and the intrasplenic pressure showed an abrupt rise; investigation revealed that the shunt was blocked. The seventh patient showed no postoperative change in the intrasplenic pressure, hematemesis recurred, and portal venography confirmed that the anastomosis was occluded. Pressure measurements made by puncture of esophageal varices at esophagoscopy have been used to ascertain portal venous pressure; however, after portacaval anastomosis, esophageal varices may become collapsed or reduced in size, making this method impracticable. Intrasplenic pressure measurement provides a much simpler means of determining the portal venous pressure.

Annular Pancreas: Its Roentgen Diagnosis and Report of a Case Preoperatively Diagnosed and Successfully Treated Surgically. H. S. Berlin and J. Taylor. Gastroenterology **29**:439-445 (Sept.) 1955 [Baltimore].

In connection with a case report of annular pancreas, the sixth one to date that has been diagnosed correctly before operation, the authors review the normal development of the pancreas and the possible embryonic "mistakes" resulting in annular pancreas. The patient, a 36-year-old man, had a history of indigestion, consisting of periumbilical pain, abdominal distention, and belching shortly following meals. There were also complaints of epigastric pain of six years' duration that radiated to both flanks and was unrelated to meals. Six weeks prior to his first hospitalization, his abdominal symptoms became aggravated and were accompanied by nausea and vomiting. The patient admitted a heavy alcoholic intake, taking several highballs daily and consuming a fifth of liquor over the week-end. Physical examination revealed moderate distention and tenderness in the upper abdomen, particularly at the midline. Laboratory studies disclosed elevation of the lipase and amylase contents of the serum. The serum calcium and inorganic phosphate were also considerably increased. A diagnosis of mild pancreatitis was made, and, on a regimen of a low-fat diet, antispasmodics and antacids, the symptoms subsided rapidly. He was discharged with instructions to maintain a low-fat diet. Roentgenograms made during this hospitalization showed a pressure defect in the second portion of the duodenum, on the basis of which the radiologist suggested the presence of an annular pancreas. Recurrence of symptoms some months later led to repeated roentgenologic examinations, which again revealed duodenal narrowing that was interpreted as being due to annular pancreas. Later an exploratory laparotomy confirmed the presence of an annular pancreas. A simple bypassing procedure effected complete relief of the patient's complaints without morbidity or recurrence of symptoms during the 16-month period that has elapsed since the gastroenterostomy. The authors feel that the simple bypass is the procedure of choice in the treatment of duodenal obstruction due to annular pancreas. If this patient had not been a heavy drinker, it is possible that the annular pancreas would have remained asymptomatic and undiagnosed. Of the approximately 75 cases recorded in the literature, only 5 have been correctly diagnosed before operation.

Accessory Intrapleural Ectopic Liver Lobe. D. Rodríguez-Pérez. Bol. Asoc. méd. Puerto Rico **47**:353-356 (Sept.) 1955 (In Spanish) [Santurce, Puerto Rico].

A case of intrapleural accessory ectopic liver lobe in a girl 15 years old is reported. This is the first case of this condition in human beings reported in the world literature. The patient, a school girl, had a routine x-ray examination of the chest. A mass in the subdiaphragmatic area in the lower region of the right side of the chest was observed. The patient was otherwise normal. A second x-ray examination of the chest confirmed the previous report. The mass was located in the lower lung field, laterally and posteriorly. Exploration of the chest revealed the mass to be free from adhesions. Its vascular pedicle was doubly ligated, cut, and removed. At the pedicle, a portal vein 1 cm. in diameter and a bile duct 3 mm. in diameter were well distinguished. The arterial supply of the accessory structure was maintained by a very small artery. Histological examination of the removed specimen revealed an ectopic liver lobe. The patient made an uneventful recovery. She was discharged one week after the operation. The lung reexpanded well and the wound healed "per primam."

Hemolytic Accident During Transfusion Due to hr' (c) Factor. O. Yahn, C. da Silva Lacaz and O. Mellone. Rev. hosp. clin. **10**:197-200 (May-June) 1955 (In Portuguese) [São Paulo, Brazil].

A man had received many blood transfusions in the past from several donors. He belonged to the O Rh-positive blood group. Further transfusions with blood of O Rh-negative donors caused acute reactions. It was observed from immunohematological tests that the reactions of the patient were due to his sensitivity exclusively to the hr' (c) factor. The antibody acted in saline and albumin mediums. The results of the Coombs' indirect and Morton and Pickles' tests gave positive results for all samples of blood containing the hr' (c) factor. It was observed, also, that anti-hr' (anti-c) serum reacted strongly against erythrocytes containing a "double dose" of the hr' (c) factor, whereas the reaction was weak when the blood used in the test contained a "single dose" of the same factor. This is the first case of transfusional accident due to the hr' (c) factor observed in the Hospital das Clínicas of São Paulo. The authors emphasize the danger of possible sensitization reactions caused by agglutinogens other than the Rh. Before blood transfusion to patients who have had transfusions in the past, it is advisable to make cross matching observations. O Rh-negative donors of the cde/cde subtype should not be considered as "ideal" donors. They should be used only for transfusions given to homologous receptors.

Use of Hyaluronidase in Rapid Hypodermoclysis. E. Otaiza M. and F. Muñoz T. Rev. brasil. cir. **29**:501-510 (June) 1955 (In Spanish) [Rio de Janeiro, Brazil].

One of the uses of hyaluronidase in surgery is for administration of rapid hypodermoclysis. The authors used a preparation ("Kinadena") that contains 10 Schering units corresponding to each 0.5 mg. of hyaluronidase. Seventy patients who had recently had an operation were given one or two hypodermoclyses, making a total of 100 hypodermoclyses administered to the whole group. The authors conclude that the proper dose of hyaluronidase in hypodermoclysis varies between 10 and 15 Schering units per liter of a solution, given at a rate of 90 drops a minute. In the cases observed by the author, the absorption time of hypodermoclysis of saline solution containing hyaluronidase was 125% more rapid than in the controls who were given subcutaneous infusions without hyalurodinase. The absorption time for dextrose solution with hyaluronidase was 20% more rapid than in the controls. There was neither intolerance nor unpleasant reaction to the substance, with the exception of very moderate pain and a sensation of local distention of the tissues in 19 patients and acute pain in 6. Hyaluronidase is contraindicated in cancer, acute infections, and circulatory collapse. It may favor propagation of metastases, spread of an acute infection or aggravate shock and collapse.

An Analysis of Pulmonary Resection in 513 Cases of Tuberculosis. F. H. Cole and F. H. Alley. Surg. Gynec. & Obst. **101:**413-417 (Oct.) 1955 [Chicago].

From December, 1948, to August, 1953, a total of 513 pulmonary resections for tuberculosis were performed at the West Tennessee Tuberculosis Hospital in Memphis. The periods of postoperative observation range from one to five and a half years. The period of this study includes years of great change in the therapy of tuberculosis, with a rapid decline in the frequency of collapse therapy, an increase in excision, and a great improvement in the antimicrobial drugs. Pneumonectomy decreased from 36% in 1949 to 5% in the last 100 operations. Lobectomy and lobe-plus-segmental resection remained fairly constant, but segmental excision increased from 2.1% in 1950 to 41% in 1954. These changes reflect more efficacious drug therapy and also the fact that the early years included many retreatment cases and failures from other therapeutic measures. Bronchostenosis dictated many of the early pneumonectomies, while it is uncommon today. A satisfactory result was obtained in 85%; in 8% the effect was doubtful and in 7%, definitely poor. The total death rate from tuberculosis and surgery was 5%. Since the middle of 1952, results have been decidedly better than before. This improvement coincides with the arrival at operation of patients who had completed long-term chemotherapy, the majority requiring only the resection of residual lesions. Another important factor in the improvement of the results is the avoidance of surgical complications by careful dissections, meticulous hemostasis, accurate replacement of lost blood, and individual attention to tube drainage. The eventual fate of a patient is more adversely affected by surgical complications than by any other single factor. Since July, 1952, good results have been obtained in over 90% of patients operated on. In this period, in which 340 resections were done, only one patient died of surgical complications six months after his operation.

Lymphoma of the Stomach and Intestine. J. F. P. Skrimshire. Quart. J. Med. **24:**203-214 (July) 1955 [Oxford, England].

The cases described comprise 18 patients seen at St. Thomas's Hospital between October, 1948, and September, 1953, four cases from the hospital records, and 2 patients seen at other hospitals. During the five years 1948 to 1953, lymphomas formed 3% of all primary malignant tumors of the stomach seen at St. Thomas's Hospital, and 50% of those in the small intestine. Men were affected more than twice as often as women, and, while gastric lymphomas generally occurred after 40 years of age, those in the intestine occurred also in younger patients, three of the patients reported here being children. The symptoms of gastrointestinal lymphomas are sudden in onset in some patients because of perforation, obstruction, or hemorrhage. In the present series, 20% of the patients had perforations. Recognition of the growth is difficult on clinical examination. The most suggestive features are the tendencies for the growths to be multiple and to produce extensive infiltrations. These characteristics may be recognized radiologically, gastroscopically, or at operation. Histological recognition of the nature of the growths is important because of their sensitivity to irradiation. The course of the disease is usually short, half the patients dying within a year of the diagnosis. Postmortem examinations frequently show very extensive local spread of growth throughout the peritoneal cavity and absent or inconspicuous distant foci of growth. Approximately 10% of all patients, and a greater proportion of those with gastric lymphomas, survive for more than five years. The prognosis is difficult to evaluate.

Gastric Mucosa Within the Oesophagus. K. N. Morris. Australian & New Zealand J. Surg. **25:**24-30 (Aug.) 1955 [Melbourne, Australia].

Ulcers that possess all of the features of peptic ulcer of the stomach occur in the esophagus, and strictures of the esophagus can occur high in the thorax with a length of apparently normal esophagus between the stomach and the level of the stenosis. Investigation of these patients has shown that the lower part of the esophagus is lined with typical gastric mucosa. Peptic ulcers are situated in this area of gastric mucosa, and they may be the site of massive bleeding, penetrate into the mediastinum, perforate into the pleural cavity, or stenose to produce esophageal obstruction. Allison designated this condition as "esophagus lined with gastric mucous membrane." The author reports on seven patients with this disorder who were observed at the Alfred Hospital in Melbourne. The average age of these patients was 65 years. Their clinical histories varied from a few months to 30 years. There was an associated hiatus hernia in three. At operation, it was often difficult to locate the site of esophageal obstruction, as the external appearances of the esophagus and stomach were relatively normal. The correct mode of treatment is still a matter of debate. In two of the early cases observed at the author's hospital, esophagogastrectomy with esophagogastric anastomosis was done in the belief that carcinoma of the esophagus existed, and the result in both instances was satisfactory. Because of this experience, it was decided to attempt a more restricted procedure, and in two patients the stricture was excised locally, and the two cut ends of the esophagus were anastomosed. This is an easy operation that only takes about one-third of the time necessary to do an esophagogastrectomy with esophagojejunal anastomosis. These patients have been followed for 12 months but so far have had no symptoms suggestive of esophagitis. When one divides the esophagus, it is usual to carry out a vagotomy at the same time because of the intimate relationship of the vagus nerves to the esophagus. It is possible that this may have some bearing on the fact that these patients have remained free of esophagitis.

Immediate and Long-Term Results of Surgical Treatment of Portal Hypertension. F. G. Uglov. Vyestnik khir. **75:**22-33 (May) 1955 (In Russian) [Moscow, U. S. S. R.].

Patients with severe portal hypertension treated by conservative methods often die from coma, gastric hemorrhage, thrombosis, or other causes. The most rational treatment of the condition is the establishment of a portacaval anastomosis. Excellent long-term results have also been obtained with the splenorenal and the mesenterocaval anastomoses. Patients with poor liver function and ascites requiring frequent incision and drainage do not tolerate surgical intervention well and must be extremely carefully prepared for operation. The essential feature of preparation of patients with hemorrhage is repeated blood transfusion, whereas in those with ascites it is the parenteral administration of protein in the form of blood or nonspecific serums. Both before and after operation, patients require heparin therapy for the prophylaxis of thrombosis. Patients with cirrhosis of the liver must maintain a strict diet even after operation; they need a large quantity of protein. Of 14 patients treated by radical operation, 11 are living from one-half to two and one-half years after the intervention. Of 10 patients treated conservatively, 9 died during the first two months.

Segmental Peridural Injection of Hydrocortone in Painful Syndrome Caused by Prolapsed Disk. G. Zappalà. Policlinico (sez. prat.) **62:**1229-1231 (Sept. 12) 1955 (In Italian) [Rome, Italy].

The injection of Hydrocortone directly into the tissue of a prolapsed disk is capable of controlling the painful syndrome caused by this condition. This suggests a rapid and direct contact of the hormone with the prolapsed disk and mainly with the compressed roots. This is best achieved by injecting the Hydrocortone (a 3 cc. dose) into the peridural space exactly at the site of the prolapsed disk. The results of this method are good, in that pain (local as well as radiating) and with it antalgic positions (scoliosis) disappear quickly and walking becomes normal. The author has used this method during the last few months, and a report on the favorable results obtained is in progress. Only late results will tell, however, whether this therapy brings about definitive results or whether it is symptomatic only. The advantages of this method, especially for patients who have become toxicomaniacs or those who refuse orthopedic or surgical treatment, are evident. Before a patient with a prolapsed disk is submitted to surgery, the author thinks it advisable to resort to this method. If the segmental peridural injection is carried out well, the pain will disappear, and thus the injection can also serve as a valuable diagnostic test. Acute crises of a prolapsed disk of long standing can also be benefited by this method of treatment.

A Skin Bank for Postmortem Homografts. J. B. Brown, M. P. Fryer and T. J. Zaydon. Surg. Gynec. & Obst. 101:401-412 (Oct.) 1955 [Chicago].

In patients with extensive skin losses, biological dressings in the form of homografts often prove lifesaving. In the past it has been necessary at times to call on a number of donors to supply the needs of one badly burned patient. This involved considerable expense for anesthetics, also time loss, postoperative wound care, and discomfort. It is now possible to take large amounts of skin from a single donor after death and either use it immediately or set it aside for later use in a skin bank. Homografts will "take" and survive for from 2 to 12 weeks, but, although they are eventually lost, closing the wounds with homografts diminishes the loss of fluids, proteins, and electrolytes; there is respite from pain and frequent dressings; infection is diminished; the fibroplastic response in the wound is reduced; a mechanical barrier to trauma is established; and there is a stimulus for the patient's own epithelization so that healing has progressed considerably by the time the homograft is absorbed. There is always a remarkable improvement in the patient's general condition, so that he is prepared for the application of permanent autografts from his own body. Homografts may even be applied repeatedly in successive "crops," after preceding grafts have been absorbed, until autografts can be removed from the patient himself. Adequate sources of skin for homografting would be available if permission were granted by patients before death or by their relatives for postmortem removal of skin grafts. The patient should be free from malignant disease or from transmissible disease or dyscrasia. The relatives might be shown the need for skin on photographs of severely burned patients, and they can be told that there will be no apparent deformity to the skin of the donor and also that only areas covered by clothing, such as the trunk and thighs, are used. It is best to remove the skin as soon after death as possible. In the event of any delay, the body should be kept refrigerated. Viable grafts thus can be obtained after 24 hours' delay, and even up to several days, as final death of skin does not occur at the same time as the cessation of circulation. The postmortem skin grafts are best removed in the operating room, where the skin is prepared with ether and alcohol and sterile drapes. Long sheets of thin split-skin grafts are removed. As these grafts are not permanent, thickness is not necessary. Simple refrigerator banking, low temperature banking, and lyophilization are discussed. The authors advise preservation and storage of skin for use in emergencies and in disasters. There are still many problems to be worked out, acquainting the public with the great need for postmortem grafts for seriously injured patients being one of the most important.

Metabolic Response to Total Adrenalectomy and Hypophysectomy. A. S. Mason. Lancet 2:632-636 (Sept. 24) 1955 [London, England].

Studies were made on the metabolism of eight women with carcinoma of the breast. Metastases were present in seven patients. Two patients were subjected to total hypophysectomy, one to total adrenalectomy, and five to total adrenalectomy and oophorectomy. Corticotropin was administered intramuscularly every six hours to patients undergoing hypophysectomy, and cortisone was injected intramuscularly twice daily to patients undergoing adrenalectomy. The results obtained with this substitution therapy in the first two patients made it obvious that, in order to observe the body's metabolic changes in response to trauma under conditions of constant hormone dosage, it was essential to start the hormone treatment several days before removal of the endogenous source of hormone and to keep the dosage constant throughout the study. Therefore, in six patients the hormone administration was started from two to four days before operation. It was found that corticotropin, in doses of 60 mg. daily, was adequate therapy for total hypophysectomy, and cortisone, in doses of 80 mg. daily, for total adrenalectomy. A dosage of 60 mg. of cortisone daily was also used, but it seemed to be suboptimal. With adequate hormonal substitution therapy, the metabolic response after these operations is similar to that seen after operations on patients with intact adrenals. The results are consistent with the hypothesis that the adrenal cortex plays a permissive role in metabolism and indicate that postoperative metabolic changes do not depend solely on changes in adrenal cortical activity.

NEUROLOGY & PSYCHIATRY

Psychological Changes Associated with Giant Pituitary Neoplasms. J. C. White and S. Cobb. A. M. A. Arch. Neurol. & Psychiat. 74:383-395 (Oct.) 1955 [Chicago].

Among 600 articles dealing with pituitary adenomas and craniopharyngiomas, only 13 were primarily concerned with the psychological changes that these lesions may produce if they expand upward to an unusual size. The authors cite five of their own cases. All but one of these patients have undergone psychiatric investigation. Four of these five patients had adenoma (three chromophobe and one chromophile), and one had a craniopharyngioma. As these tumors expand above the diaphragma sellae and compress the walls of the third ventricle or the frontal lobes of the brain, the mental changes consist of dullness progressing to somnolence and apathy, with difficulty in concentration. There may also be loss of memory, leading to confusion and sometimes confabulation. When aroused, the patient may be irritable, aggressive, and active. Poor judgment is common, and delusions and hallucinations may occur. These signs indicate that there has been a large suprasellar extension of the growth, either forward, between the frontal lobes, or upward and backward, into the third ventricle. With distention of the latter, hydrocephalus may occur from blockage of the outflow of fluid from the lateral ventricle. With extension upward and backward, the amnestic-confabulatory syndrome with somnolence is to be expected. In contrast, when the tumor separates and compresses the frontal lobes, it is likely to produce a syndrome similar to that seen after an extensive bilateral lobotomy. Convulsive seizures may also supervene, especially when extension is forward between the frontal lobes or laterally into a temporal lobe. These signs indicate a giant parasellar extension. The chances for improvement are poor for mental symptoms, for visual recovery, or for relief of headache, regardless of whether treatment is by irradiation or surgery. Ultimately, with further growth of the neoplasm, there is a progressive deterioration to a vegetative state, with increasing drowsiness and finally coma and death. Before a chromophobe adenoma is treated by irradiation, the degree of suprasellar extension should be visualized by pneumoencephalography. All the adenomas with suprasellar extension should be followed by repeated air studies and operated on before the tumor reaches a prohibitive size.

Latent and Benign Meningeal Reactions in Primary Tuberculosis in Children. H. Bour, Mrs. Hébert-Jouas and J.-C. Ducomet. Semaine hôp. Paris 31:3017-3024 (Oct. 2) 1955 (In French) [Paris, France].

A group of 1,409 children with primary tuberculosis was cared for in a preventorium in Brévannes, France, over a four-year period. Twelve of them showed meningeal reactions that were benign, transitory, and spontaneously curable. The percentage of such reactions in this group (0.85%) is undoubtedly less than that among tuberculous children generally, since patients admitted to the preventorium have spent an average of three months in other hospitals, where such reactions may easily have been overlooked. These benign reactions were not detected clinically but manifested themselves as an increase in the number of cells in the cerebrospinal fluid of 22 cells on the average. These were principally lymphocytes. Differential diagnosis of discrete meningeal reactions is important, since some may be early symptoms of tuberculous meningitis, while others are simply the benign occurrences described and do not need to be treated with antibiotics. It is possible that the benign reactions are of viral or allergic origin, occurring because the meninges have been rendered susceptible by the tuberculous process.

Results of Surgical Therapy for Focal Epileptic Seizures. W. Penfield and K. Paine. Canad. M. A. J. **73**:515-531 (Oct. 1) 1955 [Toronto, Canada].

This study is concerned with the results of cortical excision in 234 patients with epileptic seizures, who were treated during the six year period from 1945 to 1950, inclusive. The follow-up was continued at least to the end of 1951, so that there is a minimum follow-up of one year and a maximum of seven years. None of the patients included in this review had intracranial tumor. A total of 268 operations was performed on the 234 patients, some undergoing two or more operations. Cortical excisions were done in 219 patients, while in the remaining 15 patients the exploration proved negative. On the basis of the therapeutic results obtained, the patients were classified into one of five groups. Those with no seizures since the operation were placed into group 4, those with only one attack a year into group 3, those with up to six seizures a year into group 2, those in whom number and intensity of attacks was somewhat decreased into group 1, and those who showed no improvement or were worse into group 0. The number of patients in groups 4 and 3, the successful cases, accounted for 45% of the 203 patients who could be adequately followed up; the number in group 3, the good results, accounted for 20%; and groups 1 and 0, the failures, accounted for 35%. With regard to the social and economic adjustment of the patients, it was found that before operation 79 of 203 patients were fully employed despite their seizures. The threat of losing their employment induced some of these patients to request surgical treatment. Five of these are not employed at present. On the other hand, 51 not previously employed are now on a full-time work or educational schedule. Thirty-eight patients were out of work, but possibly employable, when last heard from. The authors feel that, for three-fourths of the patients, the operation has proved of real benefit. Epileptogenic cortex is harmful in its general influence on brain function. Successful removal may result in better intellectual performance and more normal behavior as well as in freedom from seizures. The operation involves risks. There were four deaths and visual field defects or aphasia in some of the patients; but, in spite of these dangers, the surgical treatment of focal epilepsy is now established as a legitimate form of therapy.

Poliomyelitis Antibodies in Human Gamma Globulin. E. M. Opton, D. Nagaki and J. L. Melnick. J. Immunol. **75**:178-185 (Sept.) 1955 [Baltimore].

Gamma globulin has found use as a prophylactic agent against poliomyelitis, but, at the time of the controlled field tests, titration of neutralizing antibodies against the three types of poliomyelitis virus had been reported only for a single lot of this material, because the intact monkey was then needed for the determination of two of the three types of antibodies. With the advent of tissue culture techniques, the picture has changed. The studies reported here were made with these techniques. Sixty-five samples of human gamma globulin, representative of the materials used for poliomyelitis prophylaxis in the United States during the summer and fall of 1953 and 1954, and two samples of Japanese origin were assayed for poliomyelitis neutralizing antibodies by means of tissue culture neutralization tests. Using a fixed challenge of 100 tissue culture doses of virus and varying dilutions of gamma globulin, the average titers for antibodies against virus types 1, 2, and 3 were 1:1,130, 1:1,060, and 1:770, using data provided by both cytopathogenic and colorimetric tests. Gamma globulin preparations derived from human placentas had as much poliomyelitis neutralizing antibody as the best preparations made from pooled plasma. Comparison of untreated human plasma pools and the gamma globulins derived from them demonstrated that poliomyelitis antibodies were concentrated in this fraction. However, a sample of beta globulin and a sample of gamma globulin, both prepared from the same human plasma, showed neutralizing antibody levels of the same order of magnitude.

Neurotropic Actions of Vitamin B_{12} in Large Doses: Experimental Studies. U. Becattini and A. Testi. Policlinico (sez. med.) **62**:220-225 (Aug.) 1955 (In Italian) [Rome, Italy].

Experiments were made on rats to study the effects of large doses of vitamin B_{12} on shock induced by Metrazol. The vitamin was given to one group of animals six and one-half hours and to another group one-half hour before the administration of Metrazol. The time that elapsed between the administration of this preparation and the onset of the shock in the rats that were given the vitamin was much longer than that in the controls that had not received the vitamin, and during this time the prodromal symptoms of shock were not observed. The duration of the shock was markedly decreased; the manifestations were less marked; there was no muscle relaxation; and the rats' condition was restored to normal in a few seconds. A dose of 2.5 mg. of vitamin B_{12} per kilogram of body weight seemed to saturate the rats; slightly larger doses did not have a greater influence on the shock; and with smaller doses the effects on it were less evident. The authors cannot give a satisfactory interpretation of these results; the mode of action of vitamin B_{12} on Metrazol-induced shock remains obscure. Studies are in progress to determine whether this vitamin has a protective action with regard to other substances that act on the central nervous system.

Progressive Muscular Dystrophy: Effect of Hormonal Treatment. J. A. Taselaar. Nederl. tijdschr. geneesk. **99**:2496-2499 (Aug. 20) 1955 (In Dutch) [Haarlem, Netherlands].

The author mentions four different forms of progressive muscular dystrophy, the excretion of pathological quantities of creatine and creatinine being common to all these forms. The author reviews the creatine and creatinine metabolism under normal and patholgical conditions and the treatment of progressive muscular dystrophy. He found that the administration of vitamin B_{12} or of di-isopropyl fluorophosphate produces no improvement in patients with progressive muscular dystrophy. Prolonged treatment with testosterone derivatives, particularly with testosterone-propylpropionate, however, produced favorable results in 20 male patients with progressive muscular dystrophy. It was also found that creatine and creatinine secretion in the urine is not a reliable indicator of therapeutic efficacy; only physical examination and information supplied by the patient reveal the effect of hormone therapy.

GYNECOLOGY & OBSTETRICS

Noninvasive Malignancy of the Vulva: Program for Management. C. G. Collins, J. Kushner, G. N. Lewis and R. Lapointe. Obst. & Gynec. **6**:339-346 (Oct.) 1955 [New York].

The authors report on 93 women between the ages of 20 and 90 years with malignancy of the vulva. Fifty-seven were less than 60 years old and 16 of these were between the ages of 30 and 40. Twenty-seven women had associated venereal disease. The high incidence of associated venereal disease in the younger age group may have been a causative factor in the early development of malignancy of the vulva. Pruritus vulvæ, ulcer, tumor, and bloody discharge were the symptoms by far the most frequently noted, and they were the same in invasive and noninvasive lesions. Nine patients, in whom the malignant process was limited to the epithelium and in whom no evidence of invasion could be found in multiple sections from biopsy material and complete vulva, were considered as cases of noninvasive malignancy of the vulva. They were managed by complete (radical) vulvectomy, consisting of wide resection of the vulva and including all of the labia, clitoris, and as much of the skin of thigh and abdomen or mucous membrane of the vagina as necessary. No other therapy was utilized. Three of the nine patients were followed up for more than five years and none for less than 22 months. In none of the nine patients has there been a recurrence. These results prove that the authors' contention that noninvasive carcinoma of the vulva, so diagnosed by multiple microscopic sections, can be treated by radical vulvectomy and that resection of the regional nodes is not necessary. In all cases of suspected malignancy of the vulva, venereal disease survey is as imperative as is biopsy.

Krukenberg Tumors: Diagnostic Problem. A. W. Diddle. Cancer 8:1026-1034 (Sept.-Oct.) 1955 [Philadelphia].

Each of the author's nine patients with metastatic ovarian carcinoma had been seen by two to five physicians before the correct diagnosis was suspected. Usually, it was undetermined until either laparotomy or autopsy was performed. This situation prompted the author to summarize previous discussions concerning 664 cases of Krukenberg neoplasms collected from world literature, with special reference to the diagnostic problem they presented. The term "Krukenberg tumor" as used by the author includes only those carcinomas of the ovary arising from the gastrointestinal tract and those signet-ring-cell carcinomas primary in the ovary itself. The author's study showed that when the triad of persistent, sometimes almost negligible, dyspepsia, anorexia with epigastric discomfort, and firm adnexal tumor is found, particularly in a woman of reproductive age, metastatic ovarian carcinoma, with primary neoplasm of the gastrointestinal tract, should be included in the differential diagnosis. Repeated roentgenographic studies of the gastrointestinal tract, gastroscopy, occasionally bimanual examination under anesthesia, exploratory laparotomy, or a combination of these procedures is required to confirm the diagnosis and to ascertain the origin of the neoplasm. Roentgenographic study, if depended on alone, may be misleading. Occasionally, the primary site may not be found until a careful postmortem examination is made. The diagnosis of metastatic ovarian carcinoma of Krukenberg carries a grave immediate prognosis. This holds true even though a relatively small primary lesion of the gastrointestinal tract may be removed with the metastatic ovarian cancer. This poor prognosis probably rests on the fact that, by the time the ovaries are involved, spread in the lymphatic system is extensive. The metastatic ovarian carcinoma of Krukenberg represents an advanced terminal phase of a neoplastic disease arising in the gastrointestinal tract. At this stage, treatment is usually only palliative. When peritoneal implants are widespread, it is apparent that radical operations, as presently done, are of questionable value. Under this circumstance radical removal appears useless and justifiable only to relieve pressure symptoms, the occasional exception being those tumors arising in the large intestine. An extensive bibliography comprising 177 papers is appended.

Fetal Mortality in Essential Hypertension. R. Landesman, E. Holze and L. Scherr. Obst. & Gynec. 6:354-365 (Oct.) 1955 [New York].

Of 735 pregnant women with essential hypertension admitted to the New York Lying-In Hospital between 1943 and 1953, 591 had mild hypertension and 144 had severe hypertension. Of the 591 with mild hypertension, 161 had superimposed toxemia of pregnancy and 430 did not. Of the 144 patients with severe hypertension, 30 had superimposed toxemia and 114 did not. The total abortion rate was 9.2%. Among the women with mild hypertension without superimposed toxemia, the abortion rate was 4.4%, and among those with superimposed toxemia it was 1.9%. Among the women with severe hypertension without superimposed toxemia, the abortion rate was 36% (half of it due to therapeutic intervention, and the other half spontaneous), and, among those with superimposed toxemia, it was 3.3%. The abortion rate among the women with superimposed toxemia would necessarily be low, as superimposed toxemia usually commences after the 24th week. The fetal loss, excluding abortions, among the women with mild hypertension without superimposed toxemia was 1.7%, while among those with superimposed toxemia it was 16.4%. Among the women with severe hypertension without superimposed toxemia, the fetal death rate excluding abortion was 23.3%, and, among those with superimposed toxemia, it was 41%. Essential hypertension is a complicating factor in 25% of all toxemias of pregnancy. Indirect evidence indicates that unrecognizable vascular disease is present in another 25%. Mild hypertension (benign) unassociated with superimposed toxemia offers no additional fetal risk. Mild hypertension associated with superimposed toxemia increases the fetal mortality rate tenfold. Severe hypertension (diastolic blood pressure of 110 or more) with or without superimposition of toxemia results in a high infant mortality rate. When superimposition of toxemia occurs, the fetal mortality is doubled to 41%. Superimposition of toxemia is unrelated to the severity of the hypertension. Spontaneous abortion is not increased in essential hypertension. The more important factor in fetal survival is the time of onset of the superimposed toxemia; 80 to 100% of the fetal loss occurred with the early inception of the superimposed toxemia before the 37th week of pregnancy. The increased frequency of interruption of pregnancy in the past five years has not resulted in any improvement in the fetal survival rate.

Desmoid Tumor of the Popliteal Space Occurring During Pregnancy: Report of a Case with Bioassays. W. B. Ober, J. T. Velardo, R. T. Greene and R. J. Taylor. J. Nat. Cancer Inst. 16:569-578 (Oct.) 1955 [Washington, D. C.].

There is both clinical and experimental evidence that desmoid tumors are in some way related to hormonal activity. They have a tendency to occur in young women during or shortly after gestation. The case presented concerned an 18-year-old woman who was pregnant. In her 17th week of gestation, on Jan. 15, 1954, a mass measuring 3 cm. was observed in the left popliteal space. It had been noted first 6 weeks prior to conception, when it measured 1 to 2 cm. in diameter and was somewhat tender. The mass was fixed to the deeper tissues of the popliteal space, but the overlying skin was freely movable. A clinical diagnosis of Baker's cyst was made, and the patient was instructed to return after delivery for excision. About one month before delivery, the mass had increased two and one-half times in size and was interfering with walking. An incisional biopsy was performed, which revealed that the mass was composed of firm, homogeneous, relatively avascular fibrous tissue. A diagnosis of desmoid tumor was made, and it was decided to defer definitive surgical treatment until after delivery. Twelve days after the woman had given birth to a healthy female infant, an operation was performed. The tumor surrounded the popliteal artery and vein and the peroneal nerve. It was necessary to free the tumor from these structures by sharp dissection. The head of the gastrocnemius muscle, the popliteus, and the head of the semitendinosus had to be excised along with the tumor. At the completion of the operation, the pulses in the extremity were strong and neuromuscular function was unimpaired. The patient was discharged three weeks after operation with considerable improvement in the motion of the knee joint. The tumor weighed 410 gm. and measured 8.5 by 13.5 cm. Saline and ether extracts of the tumor tissue stimulated uterine growth but did not produce cornification of vaginal epithelium in rats. The tumor did not contain assayable estrogenic, progestational, gonadotropic, adrenotropic, or thyrotropic substances. The neutral fraction contained substances that augmented estrogen-induced uterine growth, and the toluene fraction contained substances that augmented estrogen-induced cornification of vaginal epithelium. It is not possible to state with certainty whether the estrogen-augmenting effects observed are characteristic of the tumor or are a property of any tissue removed from a woman 12 days after delivery.

PEDIATRICS

Four Years' Experience with Antibiotic Treatment of Tuberculous Primary Infection in Children in a Preventorium. H. Bour, M. M.-T. Lesueur, Mrs. J. Hébert-Jouas and R. Terdavtian. Semaine hôp. Paris 31:3025-3036 (Oct. 2) 1955 (In French) [Paris, France].

Streptomycin, isoniazid, aminosalicylic acid, and their various combinations were used in the treatment of 409 out of 536 children under 15 years of age with primary tuberculosis of the lymphatic-pulmonary type. All 536 patients were in a special hospital receiving only patients from pediatric or infantile tuberculosis clinics in Paris. The remaining 127 children were given nonspecific therapy and were therefore considered as controls. No significant difference between the two groups was noted. Streptomycin and aminosalicylic acid have no preventive effect on the complications associated with dissemination of bacilli which may appear during treatment. Isoniazid does not seem to have any preventive effect on the local complications of primary infection, but it does appear to stop dissemination. Thus it constitutes the major medicament to be used in the treatment of primary tuberculosis. Streptomycin has special value in the treatment of infants. Aminosalicylic acid is used only in view of theoretical considerations, i. e., because of the danger of bacillary resistance. The only treatment that had any effect on the natural duration of the disease was isoniazid, especially when associated with streptomycin. This association should be used in children less than a year old, after which age isoniazid alone or in combination with aminosalicylic acid is the treatment of choice. The latter treatment has the advantages of being effective in more than half of the cases, being easy to administer and control, and keeping streptomycin in reserve. The therapy must last at least six months. None of the antituberculous agents allow of dispensing with preventorial care with its three essentials: rest, good hygiene, and proper diet.

A Comparison of Intramuscular Benzathine Penicillin and Oral Sulfonamides in the Control of Rheumatic Recurrences. C. M. McCue, C. D. Gibson Jr. and L. C. Lindemann. J. Pediat. **47**:450-460 (Oct.) 1955 [St. Louis].

The influence of monthly intramuscular injections of benzathine penicillin G on rheumatic recurrences in a group of 50 patients selected from the convalescent wards and outpatient department of the Richmond Rheumatic Fever Clinic in the fall of 1952 was compared with the influence of sulfonamides given prophylactically to another group of 50 comparable patients. The same diagnostic criteria were used in both groups and each received the same general care. The average age of the patients in the penicillin group at the start of therapy was 10.2 years, and the mean number of months since the onset of the last rheumatic fever attack was 12. The comparable figures for the sulfonamide group were 11 years and 9 months respectively. Heart disease was present in 78% of the sulfonamide group and in 85% of the benzathine penicillin group, and in a very large percentage of both it was serious in nature. Four patients were eliminated from each group because they failed to follow through. The benzathine penicillin G group received deep intramuscular injections of 1,200,000 units every 28 days. These patients had initial throat cultures and repeat cultures every three months routinely or on suspicion of a respiratory infection. Each patient received an average of 24 injections in a 26-month study period. The sulfonamide group was divided, with 32 on sulfadiazine and 14 on Gantrisin, given according to a previously described schedule with careful observation of leukocytes and urine in the early weeks. Prophylaxis in these children had an average duration of 38.6 months, because in many cases it had been started earlier; in all, however, it was continued through the same period as that of the penicillin group. Throat cultures were also made initially and at three-month intervals, but with less regularity than in the penicillin group, because it was more difficult to get the patients in to the clinic. Not a single recurrence was observed in the penicillin group, although two patients with old failure and enlarged hearts still have smoldering disease. The recurrence rate in the sulfonamide group was 4.3%. One child died of what was apparently an intercurrent infection, and three others had vague aches but no clear-cut recurrences. The value of prophylactic treatment can be seen by comparing these figures with the 61% recurrence rate noted before 1946 in an untreated group in Virginia. The results of this study provide further evidence in favor of the large-scale use of benzathine penicillin G intramuscularly for the prevention of rheumatic recurrences.

On the Prognosis of Childhood Tuberculosis: An 18-Year Follow-Up Report. Nils Levin. Am. Rev. Tuberc. **72**:513-526 (Oct.) 1955 [New York].

This 18-year follow-up report deals with 434 children up to 15 years old first reported on in 1935, in whom roentgenographic examination and culture of gastric washings had frequently been carried out. All had received sanatorium care for suspected or verified active pulmonary tuberculosis. All the children were traced and all but 18 of the survivors have now been reexamined in an investigation made for the purpose of determining the prognosis of various types of tuberculosis in childhood with regard to the age at which the disease develops; the prognostic significance of bacteriological findings in gastric washings at the initial examination; and the causes of death and the duration of survival after diagnosis. Patients followed up have been placed in their original group classifications for the sake of clarity but certain groups have been combined in this report. The 18 survivors who refused reexamination and 8 others, who are either living abroad or were registered as missing, were fairly evenly distributed throughout the various groups, and they have therefore been disregarded. A total of 47 children died; in each case, the pulmonary status at death was satisfactorily determined, and it was found that 34 had died of tuberculous disease. The most interesting findings were those obtained in the group of 254 children in whom the initial investigation showed active tuberculosis of the lungs or hilar lymph nodes. No active tuberculous lesions were revealed by the follow-up roentgenograms in 82% of this group; active disease was present in 5%; and 13% had died of tuberculosis. The mortality rate of the children with primary tuberculosis was 7%, strikingly lower than the 63% of those in whom the disease was postprimary. The mortality in the primary tuberculosis group increased with the age at which the disease was detected; in those with postprimary disease this trend was reversed, except in the children who contracted tuberculosis during puberty. Such children had a death rate of 18% in the primary group and 67% in the postprimary group. The results of bacteriological tests on gastric washings during the acute phase of the disease apparently lacked prognostic significance. Of the patients in whom the initial examination showed primary lesions and gastric washings positive for tubercle bacilli, 88% were without active disease at follow-up and 4% had active lesions, while, of those with negative gastric washings, 92% were without active disease and 4% had active lesions. Five of the 12 patients with active tuberculosis at follow-up were considered fit for work. Analysis of the 34 fatal cases showed that death was due to pulmonary tuberculosis in 26 and to tuberculous meningitis in 8. Most of the deaths from meningitis occurred in early childhood, and none of the children in whom this complication developed survived. It should be noted that these cases originated in the preantimicrobial era; only those patients who still showed active tuberculosis at follow-up had received any antimicrobial drugs.

Tissue Therapy in Seborrhea Sicca and Eczema of Nursling. S. Santyan y Velasco and F. Amore. Clin. pediat. **37**:501-510 (July) 1955 (In Italian) [Bologna, Italy].

Placental extracts used concurrently parenterally and locally to treat nurslings with seborrhea sicca and eczema gave good results, especially in the infants with the first condition. Placental tissue finely dispersed in placental juice ("Histoplac emulsion") or integral placental extract ("Placentex integro") was used for the parenteral route; placental powder incorporated in a 50% oily vitamin medium ("Histoplac cream") was used for the local treatment. The therapy was given to 26 of 52 affected infants, 14 with seborrhea sicca and 12 with eczema. In all but eight the condition had been present and remained unchanged for several weeks or months. The other 26 infants, who served as controls, received no treatment or only local treatment with the standard creams. The Histoplac emulsion was given in doses of 1 cc. every other day for 20 to 30 days and then, in most cases, every three days for 15 to 30 days; the Placentex was given in doses of 1.5 to 2 cc. every three days for 12 to 30 days and then, in most cases, every four days for 15 to 20 days;

and the Histoplac cream was applied to the involved areas once or twice daily. The infants' tolerance for the preparations was good or excellent, with the exception of four in whom a mild infiltration, which disappeared in a few days, was observed at the site of the injection. All the infants were followed for at least three months after discontinuance of the treatment. Recovery was complete and definitive in 10 infants with seborrhea sicca; a frank and lasting improvement was obtained in 2; and some improvement was obtained in 2, but it was followed by relapse and reactivation of the condition. The respective figures for the infants with eczema were four, three, and five. Pruritus, which was a continuous torment for most of the infants, was greatly influenced by the therapy, which also had a favorable effect on their weight. Notable remissions were never observed in the controls. The mechanism of action of placental therapy in these conditions of the nursling is still obscure. The "biogenous stimulators" (biostimulins) of Filatov do not as yet have a chemical identity, although recently some authors, among them Filatov himself, have compared these factors to the nucleic acids. It is definite that the therapy did not exert its action in these infants by means of endocrine substances of the gonadotropin and estrogen type contained in the placenta, because these were removed in the preparation of the extracts that were used by the authors. Studies are in progress to investigate this mode of action.

Gastric Digestion of Homogenized Milk in Infants. A. Adam and E. Czech. Monatsschr. Kinderh. **103:**361-365 (Aug.) 1955 (In German) [Berlin, Germany].

Although it is generally accepted that homogenized milk is more easily digested than ordinary cow's milk, the value of this milk in the feeding of infants is still being disputed. The authors decided to ascertain whether the quantity of gastric juice that is produced after feeding with homogenized milk differs from that produced after feeding of ordinary cow's milk. Their investigations were made on 18 infants, ranging in age from six weeks to eight months. Comparative tests were made with homogenized and nonhomogenized milk. By means of the sugar curve of the stomach, it was ascertained that in 15 of the 18 infants less gastric juice was required for the digestion of homogenized than for the digestion of nonhomogenized milk. In three of the infants the gastric sugar curves were atypical due to secretory anomalies of the stomach. On the basis of their observations, the authors conclude that homogenized milk deserves wider use in the feeding of infants.

OTOLARYNGOLOGY

Hydrocortisone-Antibiotic Therapy in Upper Respiratory Infections. A. H. Persky. A. M. A. Arch. Otolaryng. **62:**354-356 (Oct.) 1955 [Chicago].

The observations reported here were made over an eight-month period on 109 patients. The study was undertaken to determine what value a topically applied hydrocortisone-antibiotic combination might have in treating a wide variety of upper respiratory infections. The medicament, which was dispensed by drops and by means of a plastic spray bottle, had the following formula: hydrocortisone alcohol, 0.02%; hydroxyamphetamine hydrobromide, 0.5%; phenylephrine hydrochloride, 0.125%; Gramicidin, 0.005%; neomycin sulfate, 0.1%; and polymyxin B sulfate, 0.2 unit per milliliter. Patients were instructed to instill 3 squeezes of the spray bottle or one dropperful of the solution into each nostril every three hours; each method delivers 0.2 cc. of the medicament to each nostril. The efficacy of this treatment was determined objectively by clinical observation of the nasal membrane, and, subjectively, by interviews with the patients. Eighty-five of the patients had upper respiratory infections; of the remaining 24 with uninfected inflammation, 3 had hay fever, 7 had chronic hyperplastic ethmoiditis, 12 had allergic vasomotor rhinitis, and 2 had chronic nasopharyngitis. The objective results were considered excellent in 21, good in 70, fair in 10, and poor in 8 patients. The subjective results were excellent in one, good in 81, fair in 18, and poor in 9 patients. Most patients tolerated the medication well. It not only relieves the nasal congestion for five or six hours but also decreases bacterial activity and ameliorates nasal inflammation.

Antibiotic Specificity in Ear, Nose, and Throat Infections. L. J. Goldstein and S. Daly. A. M. A. Arch. Otolaryng. **62:**384-389 (Oct.) 1955 [Chicago].

During nine years after World War II, approximately 45,000 veterans were treated at the Ear, Nose, and Throat Clinic of the New York Regional Office of the Veterans Administration. Most of the chronic infections proved to be resistant to the sulfonamides and to penicillin. It became imperative to study the bacterial flora to find what antibiotic to use in each patient. These studies revealed that hemolytic Staphylococcus aureus, Proteus vulgaris, and Pseudomonas aeruginosa were the most common pathogens in chronic suppurative disease of the ears and sinuses. Individual culture and sensitivity tests were absolutely necessary for the proper treatment of the chronic infections. The authors strongly urge the combined use of two antibiotics, because, by attacking the enzyme systems of the bacteria in different ways, the development of resistant strains is prevented. They gained the impression, however, that both P. vulgaris and P. aeruginosa, in the strains obtained from fresh purulent exudate, are becoming more resistant to all available antibiotics.

Rhinopharyngeal Fibroma. E. Christiansen. Ugesk. læger **117:** 1153-1156 (Sept. 1) 1955 (In Danish) [Copenhagen, Denmark].

In the four cases of rhinopharyngeal fibroma described, in males aged 19 to 59, there were nasal stenosis, purulent secretion from the nose, and intermittent hemorrhage. Macroscopically the tumor is grayish red (depending on the vascularization), hard, fibrous, with smooth surface. There is no evidence of malignant degeneration. Histologically the tumor is an angiofibroma, partly with, and partly without muscular tissue in the wall. The vessels can become so numerous as to suggest cavernous tissue. In cases with doubtful diagnosis, biopsy must be done. The patients were treated with extirpation orally. There were no complications, and the operation has given satisfactory results. The danger is from hemorrhage.

THERAPEUTICS

Experiences with Metacortandracin (Meticorten) in Severe Bronchial Asthma. J. M. Sheldon, J. A. McLean and K. P. Mathews. J. Michigan M. Soc. **54:**1081-1083 and 1093 (Sept.) 1955 [St. Paul, Minn.].

The authors present experiences and observations on a group of 51 patients with severe asthma who had responded poorly to other accepted methods of therapy. Metabolic studies are detailed on the 15 patients who had been observed for the longest period of time. The group is rather unusual, in that 11 were aspirin-sensitive and 23 had infectious (intrinsic bacterial) asthma. In the remaining 17 patients, the asthma was of a mixed type or due to extrinsic protein sensitivity. Thirty-six of the patients had previously received cortisone, hydrocortisone, or corticotropin, and 11 of this group had taken a daily dose of 75 to 200 mg. of cortisone continuously for a period of from three months to three and one-half years before the medication was changed to Meticorten, which is also known as prednisone. About one-third of the patients were hospitalized for from 8 to 21 days, while the others were observed as outpatients. During hospitalization, the blood pressure, weight, eosinophil counts, and vital capacity determinations were recorded daily; 24 hour urinary 17-ketosteroid determinations were made before and at varying intervals after the administration of Meticorten; a routine urinalysis was made each week, and the chest was examined each day. Upon discharge these studies were repeated at weekly intervals. A similar investigation was carried out in all cases managed as outpatients. The initial dosage of Meticorten consisted of divided doses of 25 mg. daily in 46 and 35 mg. in 5 patients. When maximum improvement with complete asthmatic control occurred, the Meticorten dosage was gradually reduced by 5 mg. per day. The drug proved to be very effective for the temporary, symptomatic relief of bronchial asthma. In all but one of the 51 patients, satisfactory clinical control was obtained. However, as with other steroids, relapse usually occurred when the drug was withdrawn. Hence, it is not a substitute for the specific etiological management of the asthmatic patient. However, in a number of instances this drug proved to be more satisfactory than other steroids or adrenocorticotropic hormone. Three patients have been free from the recurrence of asthma for from 60 to 86 days. Undesirable side-effects appear to be less frequent than with other hormones, and dietary restriction was not necessary. The period of observation is far too short and the number of patients observed is too small to permit final conclusions, particularly in regard to possible side-effects from prolonged treatment.

Nine-Alpha-Fluorohydrocortisone. L. de Gennes and G. Deltour. Presse méd. **63**:1214-1215 (Sept. 17) 1955 (In French) [Paris, France].

The history of 9-α-fluorohydrocortisone (Compound FF) is reviewed. The authors made a few preliminary trials of the drug as replacement therapy in patients with adrenal cortical hypofunction (Addison's disease). The results were encouraging for clinical application of this agent in the future. At the moment, however, Compound FF does not seem to be susceptible to use as the only substitutive agent in this disease, because it causes severe sodium and water retention and massive potassium excretion. Even in small doses 9-α-fluorohydrocortisone is capable of producing edema or grave accidents of hypokalemia. Its advantages are strong glucocorticoid and mineralocorticoid action, effectiveness by the oral route, and prolonged effect. The drug produces no ill-effects when applied externally and is therefore useful in the treatment of inflammatory dermatoses.

Clinical Contribution to the Use of Hydrocortisone by the Oral Route. E. Cecchi and F. Ferraris. Policlinico (sez. prat.) **62**:1132-1137 (Aug. 22) 1955 (In Italian) [Rome, Italy].

Alcohol-free hydrocortisone was given orally to 35 patients with rheumatoid arthritis in average daily doses of 80 mg. for two weeks and 30 mg. thereafter for almost four months. All of the patients showed clinical and roentgenographic signs of active disease and joint involvement. The disease was in the second stage in 24 patients and in the third stage in the others. A complete remission was obtained in the two patients in whom the disease was rather mild. In the others, the condition of the joints was benefited and the functional capacity was increased. The erythrocyte sedimentation rate dropped, as did leukocytosis, when present; hyperglobulinemia became less marked; and the albumin-globulin ratio tended to become normal. Despite the clinical improvement, the roentgenographic findings remained unchanged. Oral administration of the preparation in daily doses of 140 mg. for two weeks and then 60 mg. daily controlled the severe symptoms that were present in one patient with lupus erythematosus disseminatus. Three months after the therapy was started, the patient's general condition was satisfactory. Four patients with bronchial asthma were given 200 mg. of hydrocortisone orally on the first day and progressively decreasing doses of it thereafter until a daily maintenance dose of 10 or 20 mg. was reached. The effect was brilliant in all with disappearance of the dyspnea and of the pulmonary findings; one month after discontinuance of the therapy, the improvement was still present. Oral hydrocortisone therapy had good effects also in two patients with nephrosis and one with ulcerative colitis. It improved the general condition of, and controlled the hemorrhages in, two patients with thrombopenic purpura, but it did not bring about an increase in the number of platelets. The therapy had no effect in two patients with subacute myeloid leukemia and in one with aplastic anemia secondary to Hodgkin's disease that had been treated with mustard gas. The side-effects of the therapy were few, not too severe, and were easily controlled by reducing the dose of hydrocortisone.

Antibiotic-Resistant Staphylococcal Infection: A Study of Antibiotic Sensitivity in Relation to Bacteriophage Types. M. Barber and J. Burston. Lancet 2:578-582 (Sept. 17) 1955 [London, England].

When penicillin-resistant infection first became a problem, reports emphasized that most cases were the result of cross infection and that the only way to stem the tide was to increase the aseptic control, but what is regarded as good aseptic control has failed. The studies described were undertaken to ascertain the reasons for this failure. Of 62 babies born in a maternity unit, 55 left the hospital carrying penicillin-resistant strains of Micrococcus (Staphylococcus) pyogenes var. aureus in the anterior nares. A study of antibiotic sensitivity patterns and bacteriophage types suggested that in most cases the babies had acquired these organisms from the nurses rather than from their mothers. There were no serious cases of sepsis. Strains of M. aureus were isolated also from 100 infective processes in other departments; 59 of these were resistant to penicillin, 30 to streptomycin, 26 to oxytetracycline, and 3 to chloramphenicol. Strains sensitive to antibiotics were isolated mostly from outpatients and from patients admitted with closed abscesses, whereas a large number of antibiotic-resistant infections appeared to have resulted from hospital cross infection. In the present investigation, 53 strains of M. aureus were found to be resistant to one or more of three antibiotics and all were of phage group 3. Strains of phage group 3 appear to yield antibiotic-resistant variants more readily than do other strains of M. aureus. Of 26 infections occurring after operations in the general surgical wards, none was due to an antibiotic-sensitive strain, and 17 were due to strains resistant to penicillin, streptomycin, and the tetracyclines. Two ways are suggested in which the problem can be attacked. The first is to keep clean surgical cases separate as far as possible; they should not be in the same ward with patients who have extensive superficial micrococcic (staphylococcic) lesions, which cannot be covered and must therefore infect the environment. The second is the intelligent local use of antibiotics. Local treatment with antibiotics for long periods is one of the best ways of rendering an organism resistant and should therefore be avoided. An exception to this rule is neomycin, and this antibiotic, or the synthetic compound 1:6-di-4'-chlorophenyl-diguanidohexean ("Hibitane"), is probably the most suitable agent for the local treatment of micrococcic lesions. More important than this, however, is to keep at least one antibiotic in reserve.

Two New Synthetic Steroids: Prednisone and Prednisolone. M. Pestel. Presse méd. **63**:1179 (Sept. 10) 1955 (In French) [Paris, France].

Two compounds have been recently synthesized that seem to have the same anti-inflammatory and antirheumatic properties as cortisone and hydrocortisone but do not cause water and salt retention in the usual doses. They are prednisone (Δ_1 dehydrocortisone), or metacortandracin, and prednisolone (Δ_1 dehydrohydrocortisone), or metacortandralone. They have a greater anti-inflammatory and a greater glucocorticoid activity than the older drugs; in fact, they have been shown to be three or four times more potent than cortisone and hydrocortisone. At the same time, the new drugs have less effect on the lymphatic system and cause less disturbance of water and electrolyte metabolism. As to toxic effects, the drugs are well tolerated but cause suppression of the circulating lymphocytes and increase in the polynuclears; prednisolone is considerably the more powerful in this regard. The effect is reversible on cessation of treatment. Prednisone is also the more powerful in suppressing normal growth of the spleen and causing thymic involution; this effect also is transitory. One advantage of therapy with the new steroids is greater dietary freedom for the patient. The drugs augment protein catabolism and cause a decrease of potassium. It is advisable to administer anabolic steroids in association with them, especially when massive doses are being used. Estrogens or testosterone can prevent depletions of calcium or phosphorus. Patients given the drugs must, as always, be carefully watched, and there are various contraindications, of which tuberculosis is the strictest. Doses must be individually adjusted. In general, in a patient with acute articular rheumatism, 20 or 30 mg. a day is a good starting dose, followed by 2.5 to 5 mg. a day after the first therapeutic effects have been noted.

RADIOLOGY

Treatment of Multiple Myeloma with Radioactive Iodine and Radioactive Iodinated Serum Albumin. J. P. Kriss, H. R. Bierman, S. F. Thomas and R. R. Newell. Radiology **65**:241-249 (Aug.) 1955 [Syracuse, N. Y.].

Of 17 patients between the ages of 40 and 70 years with multiple myeloma, 9 were given systemic treatment with radioactive iodine (I^{131}) and 7 with radioactive iodinated serum albumin (RISA). Each of the patients treated with I^{131} was given about 150 mc. of the isotope orally after preliminary stable iodide treatment. Three of the nine patients received a single dose, while the other six were given a series of treatments up to a total dose of 510 mc. Radioactive iodinated serum albumin was given intravenously in doses of 10 to 20 mc. Four of the seven patients received a single dose, and three were given a series of treatments up to a total dose of 42 mc. Of the nine patients treated with I^{131}, four gained strength and were relieved of pain; the same results were obtained in three of the seven patients treated with RISA. Relapse in three to four months was the rule. If relapse occurred, retreatment was usually effective. In two patients, the rapidly progressing disease was apparently arrested for 15 months with I^{131} and for 9 months with RISA respectively. Anemia was not improved; there were no lasting changes in serum protein pattern; and marked recalcification of bony lesions did not occur. In view of the paucity of the objective evidence of improvement, it is prudent to regard the effects of I^{131} as palliative only. Mild radiation sickness occurred in about one-third of all patients. Consideration may be given to treatment with I^{131} or RISA when whole body irradiation is desired, if the patient is not ambulatory or cannot be easily moved for x-ray therapy, if local x-ray treatment is inadvisable because painful areas are too numerous, and if skin tolerance to roentgen rays has been exhausted. RISA must be given by vein, but it is more economical of the isotope, and its dose is below the level for which the Atomic Energy Commission requires hospitalization. Radioactive iodine, as iodide, can be given by mouth; it is preferable to RISA if it shows selective localization in the lesions. Either of the two radioactive agents will destroy the thyroid if its uptake is not blocked.

Roentgenologic Aspects of Chordoma. J. R. Utne and D. G. Pugh. Am. J. Roentgenol. **74**:593-608 (Oct.) 1955 [Springfield, Ill.].

Chordoma is one of the few neoplasms that originate from and retain the histological structure of primitive embryonic tissue. It originates from remnants of the notochord, grows slowly, is locally invasive, but tends to recur after surgical removal. Because of its insidious growth, it may be present for long periods before treatment is sought. This report is based on the records of 72 patients with histologically proved sarcoma, which were found in the files of the Mayo Clinic from 1910 to 1953. Original roentgenograms made prior to treatment were examined in 41 cases. Thirteen of the patients are reported for the first time. Since more than 500 cases have been reported in the literature, chordoma is not so rare as is commonly assumed. The high incidence of previous injury, the distribution of the lesions, and the preponderance in the male sex suggest that trauma may be a predisposing factor. Gross examination of the tumor reveals a round, irregular, encapsulated mass composed of gelatinous or mucoid tissue, the lobules of which are separated by fibrous septa. The microscopic picture shows the large physaliphorous cells with the typical arrangement in cords or strands lying in a sea of mucus. The similarity of the clinical and roentgenographic manifestations of cranial chordomas to other intracranial neoplasms precludes a correct preoperative diagnosis in most cases, but a chordoma should be considered in the differential diagnosis of all midline tumors at the base of the brain. The presenting complaints and roentgenologic findings of vertebral chordomas reveal no distinguishing characteristics to differentiate them from other tumors of the spinal column. In sacrococcygeal chordoma, however, the correct preoperative diagnosis is possible in nearly half of the cases, chiefly because of the prolonged clinical course and rather typical roentgenologic manifestations. Roentgenographic evidence of bone involvement or of a soft tissue mass is found in more than 90% of patients with chordoma.

PHYSIOLOGY

The Houssay Phenomenon in Man. J. C. Harvey and J. de Klerk. Am. J. Med. **19**:327-336 (Sept.) 1955 [New York].

The Houssay phenomenon, or hypoglycemia and a marked increase in sensitivity to insulin, rarely occurs in man; when it does, it is usually caused by infarction of the anterior lobe of the pituitary gland. One of the first effects of the anterior pituitary insufficiency is hypoglycemia, which follows within 24 hours after the infarction and is manifested by bizarre and rapidly changing neurological signs associated with loss of consciousness. The patients, who have usually had diabetes mellitus for a considerable time, exhibit extreme sensitivity to administered insulin. Those who have survived the acute phase of the illness have begun within a month or two to exhibit the clinical manifestations of thyroid, adrenal, and gonadal hormone deficiency. Diabetes in these patients is ameliorated, but by no means cured. The symptoms of diabetes disappear, glycosuria decreases, and the sugar in the blood approaches the normal level, but the diabetic tendency remains and the response to the stress of intravenously administered glucose is still diabetic in type. Continued administration of insulin is sometimes necessary, but the "Houssay man" is quite as sensitive to insulin as the "Houssay dog," and hypoglycemia is always a threat to life. The excellent results that can now be obtained in patients with panhypopituitarism by judicious hormone replacement therapy make the early recognition of pituitary insufficiency a matter of vital importance. It should be immediately suspected in patients with diabetes if their insulin requirements decrease rapidly or if insulin shock occurs with great frequency and hypoglycemia is prolonged and relatively resistant to the intravenous administration of glucose. Three such patients have been seen at the Johns Hopkins Hospital: one was a 22-year-old white woman in the ninth month of her first pregnancy; another was a 68-year-old white man with benign prostatic hypertrophy, who had been found to have diabetes at the age of 58; and the third was a 40-year-old Negro, admitted in 1949 to another hospital in severe diabetic acidosis. The complaint common to these patients and several of those previously reported on in the literature was severe headache, recognized in retrospect as having been felt at the time the pituitary infarction must have occurred. The first two patients died, but the third is still alive. He has refused replacement hormone therapy, although he has clearcut signs of thyroid, adrenal, and gonadal hormone deficiencies. His diabetes is improved, apparently as a result of pituitary insufficiency caused by generalized sarcoidosis involving the pituitary gland.

Relationship of Sodium Retention and Venous Pressures to Edema Formation. R. Goldman and S. H. Bassett. Circulation **12**:630-634 (Oct.) 1955 [New York].

Two patients with congestive cardiac failure were placed on a metabolic balance regimen, and supplemental sodium chloride was administered. The retention of water induced by the sodium supplementation amounted to over 3 kg. and presented as clinical edema. In neither of these two patients was the edema preceded by an increase in the brachial venous pressure. This observation supports the concept that retention of fluid in heart failure does not depend upon an initial elevation in venous pressure.

BOOK REVIEWS

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Roentgen Interpretation. By George W. Holmes, M.D., Radiologist to Waldo County Hospital, Belfast, Maine, and Laurence L. Robbins, M.D., Radiologist-in-Chief to Massachusetts General Hospital, Boston. Eighth edition. Cloth. $10. Pp. 525, with 371 illustrations. Lea & Febiger, 600 Washington Sq., Philadelphia 6, 1955.

This new, enlarged, and more detailed edition of one of the oldest and most honored textbooks in roentgen diagnosis is most welcome. While some of the reproductions of roentgenograms of the chest do not depict the processes described, the illustrations as a whole are greatly improved and are shown as negatives. The text is unusually complete for a book of this size and suggests that the authors were attempting to produce a textbook for students, a guide for general physicians, and a handbook for radiologists. The limitation in the number of illustrations always presents a problem of selection. The authors have attempted a compromise between illustrating unusual or rare conditions and concentrating on common situations. While such efforts at reaching a variety of readers often prove unsatisfactory, in this volume some success has been achieved. It is unfortunate that more attention was not given to radiographic technique or the basic principles of roentgen diagnosis, information much needed by the student and general physician. Insufficient attention is given to the dangers involved in roentgen diagnosis and to methods of protecting the patient. This material is covered in the good chapter on fluoroscopy but only incidentally; the false impression may be gained that there is no danger in radiography. There are a number of errors of minor significance. It is surprising to find the statement that foreign bodies in the bronchi occasionally produce emphysema when this is the common early change. Also the reference to "ball-valve" obstruction of the bronchi as if it were synonymous with "check-valve" is erroneous. Of its many good features, an excellent table summarizing the usual findings in bone tumors and a good elucidation of many pulmonary conditions are notable. On the other hand, considering the present interest in carcinoma of the lung, it is surprising that more space was not devoted to this subject. On the whole, this is a complete, concise, well-written, and well-illustrated textbook covering fluoroscopy and the interpretation of roentgenograms in an adequate fashion.

Keratoplasty. By R. Townley Paton, M.D., F.A.C.S., Surgeon Director, Manhattan Eye, Ear and Throat Hospital, New York. Cloth. $28.50. Pp. 280, with 87 illustrations. Blakiston Division, McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36; 95 Farringdon St., London, E.C.4, England, 1955.

In this book the chapter on the history of corneal transplantation makes the reader aware of the fact that the more modern views on this subject are merely refinements and new adaptations of old and basic concepts; it also points up the drama of the emotions of the early pioneers in the field. The author reviews in minute detail the physiology of the cornea, but the complex problem of transparency remains unsolved. Under case selection, with the increasing number of reports on keratoplasty, clinical criteria for the selection of favorable and unfavorable cases are further amended, refined, and altered. As a supplement to his own views, techniques, and experiences, Dr. Paton carefully and critically reviews the techniques of some of the ophthalmic surgeons prominently associated with corneal transplantation. The book is superbly illustrated with color plates and black and white photographs and drawings that demonstrate preoperative and postoperative results, successes and failures. The history, role, purposes, and goals of the Eye-Bank for Sight Restoration, Inc., and the newer procedures legalized throughout the world for securing cadaver corneas are thoroughly discussed. Dr. Paton classifies those patients who require lamellar, penetrating, or tectonic grafting and guides the reader in the selection and preparation of patients, grafting techniques, postoperative and adjuvant treatments, and the treatment of early and late complications. Corneal healing after transplantation is discussed, including the various theories as to the fate of the graft, the regeneration of corneal nerves, corneal vascularization, and the *maladie du greffon*, or illness of the graft, which is still very perplexing and discouraging. The statistical table of results of corneal grafting in all types of corneal clouding, due to congenital dystrophies, disease, deformities, and/or traumatic injuries, enables the reader to determine that the diverse percentages of clear grafts in the different categories are directly proportionate to the varying degrees of corneal opacity and vascularization. With this information, the surgeon can predict fairly accurately the chance for a successful graft in most cases. The book contains particularly useful reference material for the ophthalmic surgeon performing corneal grafting, or for the ophthalmologist consulted for advice and the possible outcome of such grafting. Hospitals contemplating the establishment of eye and tissue banks should find it of value.

Fractures and Joint Injuries. Volume II. By Sir Reginald Watson-Jones, F.R.C.S., F.R.A.C.S., M.Ch.Orth., Extra-Orthopædic Surgeon to Her Majesty the Queen, London. Fourth edition. Cloth. $22 (2 volumes). Pp. 445-1073, with 904 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1955.

More than two years have elapsed since the first volume of the fourth edition of this opus was published. It is clear that this eagerly awaited volume has been extensively revised. Many new illustrations have been added, redundant and out-of-date material has been deleted, and new methods of treatment that have assumed a greater importance in the management of certain fractures have been emphasized. For example, the section on acute and recurrent dislocation of the shoulder joint has been entirely rewritten and the need for immobilization of the initial injury has been properly emphasized. In the same way, it is now recognized that fractures of the neck of the femur, formerly classified as abduction and adduction fractures, are due to external rotatory strains and the roentgenographic appearances are merely due to the different degrees of rotation and displacement that arise from varying degrees of lateral rotation. Treatment of fractures of the neck of the femur is wisely dealt with, and the place of the femoral head prosthesis receives proper emphasis. The use of intramedullary nailing in the treatment of certain fractures of the femur, humerus, and other bones is given its proper place. The section on maxillofacial injuries has been extended and brought up-to-date. Fracture of the spine with paraplegia is wisely discussed, and the advantages of early internal fixation of the spine, in the presence of paraplegia, is emphasized. Throughout this volume one senses the author's interest and concern with rehabilitation and the return of the injured patient to work. This monograph is at once the most complete, the most balanced, and the best-written textbook of its kind in the English language.

Anesthesia in Ophthalmology. By Walter S. Atkinson, M.D., Associate Clinical Professor of Ophthalmology, New York University Post-Graduate Medical School, New York. Publication number 251, American Lecture Series, monograph in American Lectures in Ophthalmology. Edited by Donald J. Lyle, M.D., F.A.C.S., Professor of Ophthalmology, College of Medicine, University of Cincinnati, Cincinnati. Cloth. $3.25. Pp. 101, with 44 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1955.

The author has prepared this brief monograph almost exclusively for the surgeon and devotes most of the pages to a discussion of local anesthesia. The required techniques are simple and are adequately discussed. Most of the illustrations are well done. The author uses procaine, tetracaine, or lidocaine and ordinary standard equipment, syringes, and needles. The discussion of preanesthetic preparation is straightforward and conservative; however, the doses of barbiturates, chloral hydrate, and meperidine suggested in this monograph would be considered by many as generous, although the author previously

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

warns against using too large a dose. The pages devoted to the psychological preparation of the patient are timely and well chosen. The complications from drugs are stressed with some humorous illustrations. General anesthesia is mentioned with little more than the statement that it is indicated for children, for extensive ocular operations, and for those objecting to local anesthesia. The author is willing to leave its choice and administration to an anesthesiologist if one is available. The monograph should be useful and of interest to those practicing, preparing to practice, or teaching ophthalmology.

Textbook of Endocrinology. Edited by Robert H. Williams, M.D., Executive Officer and Professor of Medicine, University of Washington Medical School, Seattle. Contributors: William H. Daughaday and others. Second edition. Cloth. $13. Pp. 776, with 173 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, England, 1955.

This second edition of a textbook that first appeared in 1950 has been prepared by the same group of 10 collaborators with the exception of Dr. L. H. Newburgh, who has been replaced by Dr. Daughaday, and the late Dr. E. J. Kepler, whose contribution has been revised by other contributors. The subject matter has been brought up-to-date without materially changing or enlarging the book. The book in general follows the usual approach to the subject, with the individual chapters differing in the relative attention given to the basic theoretical and practical clinical aspects of the subject. For example, the chapter entitled Diseases of the Parathyroid Glands occupies 98 of the 743 pages of the book. The thymus and pineal, although admittedly of little importance, receive no notice. This defect, inherent in any textbook of multiple authorship, must render such books uneven and less well correlated than those of a single author. In general, however, the present volume is sound and the treatment of some aspects of endocrinology excellent. The format and type are excellent and the illustrations well chosen, although some of the radiographs are too poorly reproduced to be of value. The book can be recommended to the practicing physician.

Advances in Cancer Research. Volume III. Edited by Jesse P. Greenstein and Alexander Haddow. Cloth. $8.50. Pp. 369, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1955.

This book summarizes the progress made in certain phases of cancer research. Its reviews appear to be thoughtfully organized and include such subjects as the etiology of lung cancer, the experimental development and metabolism of thyroid tumors, new developments in the electronic structure and carcinogenic activity of aromatic molecules, carcinogenesis, pulmonary tumors in experimental animals, and the oxidative metabolism of neoplastic tissues. Each review is well documented by an extensive bibliography. Except for the review by Doll, the material is probably too didactic and theoretical for the clinician or practitioner; however, it should be of interest to research workers in the field of experimental cancer and should find its way into the libraries of institutions where basic cancer research is in progress.

Diagnosis of Congenital Heart Disease: A Clinical and Technical Study by the Cardiologic Team of the Pediatric Clinic, Karolinska Sjukhuset, Stockholm. By Sven R. Kjellberg, Edgar Mannheimer, Ulf Rudhe and Bengt Jonsson. Cloth. $22. Pp. 649, with 581 illustrations. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1955.

Although this book is based on clinical and roentgenographic studies of 396 patients with congenital heart disease, the authors have reviewed the literature for each abnormality. The result is an up-to-date presentation of what is known about each congenital cardiac lesion in respect particularly to its clinical recognition. The illustrations, which are numerous, are of excellent quality, particularly the angiocardiograms. Studies, where possible, in each case included cardiac catheterization, angiocardiograms, electrocardiograms, heart sound records, and electrokymography. The first chapter is devoted to embryology with particular attention to mechanisms by which maldevelopment can produce congenital cardiac lesions. This is followed by a section describing the techniques used in examination. The various congenital lesions discussed in the succeeding chapters include pulmonic stenosis, tetralogy of Fallot, persistent truncus arteriosus, ventricular and atrial septal defects, anomalous drainage of pulmonary veins, patent ductus arteriosus, coarctation of the aorta, subaortic stenosis, and other rarer anomalies. The authors have done a fine job in this careful clinical study of a large series of congenital cardiac lesions. Their work should help materially to establish sound criteria for the clinical diagnosis of a number of congenital lesions heretofore difficult to diagnose during life. This is one of the really good recent books on congenital heart disease. It is a good reference book for the pediatrician and the internist interested in cardiology.

Clinical Orthopaedics. Number Five. Anthony F. DePalma, editor-in-chief. With assistance of associate editors and board of advisory editors. Cloth. $5. Pp. 242, with illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; 2083 Guy St., Montreal, Canada; Pitman Medical Publishing Company, Ltd., 39 Parker St., Kingsway, London, W.C.2, England, 1955.

This volume is in the general format of the previous volumes in this series. It is advantageous to have a single subject carried as a major theme of each volume, and this one contains several good articles on backache. Some of the articles have been previously published, so that little of the material is entirely new. It is, however, a good grouping of papers on this subject. A summary is presented at the end of each article. The latter part of this book might have been more carefully edited as to subject matter and the conclusions drawn therefrom, many of which are controversial. The book is well documented, is of convenient size, and is easily read. It is hoped that the authors will continue with this type of presentation.

Poet and Psychiatrist, Merrill Moore, M.D.: A Critical Portrait with an Appraisal of Two Hundred of His Poems. By Henry W. Wells. Cloth. $5. Pp. 325. Twayne Publishers, 31 Union Sq. West, New York 3, 1955.

A sonnet, ere the days of Merrill Moore,
Was looked upon as an accomplishment—
To quarry blocks of words from mother lodes,
Haul them away from where they were before,
Hammer and chisel them till they were bent
Into new combinations, different modes,
Then rearrange and polish, make them shine,
Garnishing fresh ideas in fresher style.
So hours and days, and sometimes weeks and years,
Were spent to make one sonnet superfine.
Great poets made a few in a long while—
A task so difficult it caused them tears.
This has been rectified by Merrill Moore,
His day is wasted that yields not a score.

How is it that this buccaneer of sonnets
Continues almost profligate of rhyme
Since he has other full-time occupations,
As helping those confused with bees in bonnets
(And psychiatric treatment feeds on time)
By balancing depressions with elations.
For recreation, when not writing verse,
He photographs the world from every angle,
In number matching sonnets with his snapshots.
Great volume does not make their goodness worse.
Conchology and finding shells that spangle,
A hobby that prevents reposeful nap plots.
He is a husband, father, soldier, teacher,
Physician, poet, everything but preacher.

Whence comes this energetic cavalier
Who can combine a dozen occupations
And bring to each accomplishment its grace?
The answer to his multiple career,
Achievements in a hundred combinations,
Is told by Henry Wells. He says the place
To find the cause of his fecundity
And his exuberance is in his verse.
Autobiography most clearly tells.
The South gave family, warmth, and human pity,
New England sharpened without making terse.
Their intertwining is described by Wells,
So in the end we learn just how from Merrill—he
Writes wisely and enormously and merrily.

QUERIES AND MINOR NOTES

DIFFERENCES IN SEDIMENTATION RATE VALUES

To the Editor:—*The number of methods published for determining the sedimentation rate has created a problem in that different authors list different normals for the same method. For example, Stewart and Dunlop's "Clinical Chemistry in Practical Medicine" (ed. 4, Baltimore, Williams & Wilkins Company, 1954), gives Westergren normal 2 to 5 mm. per hour, with readings above 12 mm. per hour as definitely abnormal, whereas in Kolmer's "Clinical Diagnosis by Laboratory Examinations" (New York, Appleton-Century-Crofts, Inc., 1943) the normal is given as up to 15 mm. per hour for men and up to 20 mm. per hour for women. In "An Index of Differential Diagnosis of Main Symptoms" (ed. 8, Baltimore, Williams & Wilkins Company, 1954), Westergren method is quoted, with the following statement made regarding correction for anemic blood, "A slightly raised sedimentation rate, say 10 to 20 mm. in the first hour, should not be regarded as significant until the patient has shown to have no anemia, for a reduction of the red cells to about 4 million would be sufficient to account for such an increase." Stewart and Dunlop, however, state that in their opinion only when a large bore tube is used must a correction for anemia be made. They believe that the red blood cell count may be ignored when the small bore Westergren tube is used. I have read that Cutler denies the necessity for using a blood correction when his method is used. Please discuss this problem.*

M.D., Michigan.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—No wonder there is confusion concerning normal values and the proper method for determining the erythrocyte-sedimentation rate. Dozens of methods have been described, various times for reading (from a few minutes to 24 hours) have been advocated, and various correction factors have been proposed. Some recommend reports based on curves, while others have been satisfied with a single reading. The test, although useful, must be looked on as nondiagnostic of any particular disease and of prognostic value only under limited conditions. Westergren (1921) stated that the blood was to be diluted 1:4 with 3.8% sodium citrate dissolved in water. The test was to be set up in a tube 30 cm. long with an inside diameter of 2.5 mm. and a scale of 200 mm. equivalent to 1 ml. of blood. His normal values were given in a footnote that stated that, on study of 12 men who said they were healthy, 10 had a 2 mm. fall in one hour and 2 had a 5 mm. fall. He cautioned against dogmatic interpretation of normal values and ventured the opinion that a higher value than 3 mm. in one hour seldom occurred and that 10 mm. was rare in healthy persons. He did not establish separate values for men and women but quoted Fåhraeus as reporting that in men the sedimentation rate was 2 mm. in one hour and in women 5 mm. Since then, values for the Westergren method in normal persons have been greatly extended. For example, Sunderman and Boener list for men, 1 to 3 mm., and for women, 4 to 7 mm. Todd and Sanford, and Wells, list normals for men for one hour as 0 to 15 mm., for women as 0 to 20 mm. Similar statements could be made concerning almost every other method. Cutler advocates the use of a curve for determining the sedimentation rate and states that for all practical purposes a maximal settling in five minutes of 1 mm. or less is normal; everything else is abnormal and therefore pathological. However, Wells has given normal one hour rates for the Cutler method as 2 to 8 mm. for males and 2 to 10 mm. for females. Similar values are given by Sunderman and Boener.

The Wintrobe and Landsberg method, which has enjoyed widespread use, makes use of solid anticoagulants instead of liquid ones and utilizes a tube 110 mm. long and of 3 mm. bore. Readings are made at the end of one hour. Wintrobe and Landsberg are the chief exponents of correcting the sedimentation rate in relation to the cell volume. They found that when such corrections were applied the sedimentation rate in 72% of men and women ranged from 0 to 6 mm. and in an additional 16% from 7 to 10 mm. The questioner is correct in stating that Cutler denied the necessity for using a correction for the number of erythrocytes when his method is used. Westergren certainly did not use such a method of correcting for the erythrocyte count or cell volume, and others, while calling attention to the possible advantage, do not make use of such corrections.

A large number of factors affect the sedimentation rate. Some of these are the fibrinogen and protein content of the plasma; the size, volume, and shape of the cells; the degree of rouleau formation; the temperature of the room in which the test is conducted; and to some minor extent the type of anticoagulant used. From these and other considerations it is obvious that normal values are subject to variation and no such values should be considered as hard and fast. Correcting for the cell volume will only complicate the test. As a rule of thumb, one should not consider values in the Westergren method of less than 15 mm. for men and 20 mm. for women as being necessarily pathological or significant (blood dilution 1:10). For the Cutler method, if the hour reading is to be taken, normal values for men up to 8 mm. and for women up to 10 mm. are certainly safe. For the Wintrobe and Landsberg method any figure less than 10 mm. should be considered normal. Each method has advantages and disadvantages. For example, the Wintrobe tube is more difficult to fill and clean than the Westergren tube. If cell volumes are going to be determined anyway, then the Wintrobe tube has advantages over any other. Many workers consider the Cutler tube too short for ease of reading and accuracy of determination. Perhaps the best method, taking advantages and disadvantages into consideration, is that of Westergren, and the long tube probably automatically corrects for a number of the shortcomings of other methods and for the variations of the cell volume. It is likely that, if readings are made in terms of "fast," "moderate," and "slow," as much information will be imparted to the clinician as an actual reading in terms of millimeters of fall in any given time.

Answer.—As in all laboratory procedures, the conditions must be adhered to as originally described, controls should be determined, and normal values should be established for that laboratory. The discrepancy in normal values cited provides a good illustration. In the original Westergren method 4 parts of blood are added to 1 part of 3.8% sodium citrate solution; the normal ranges for men and women are 1 to 3 mm. per hour and 4 to 7 mm. per hour respectively. Most textbooks describe a technique in which 9 parts of blood are added to 1 part of the anticoagulant, resulting in enhanced rouleau formation with a greater fall of the red blood cells in the one hour period; this modification quotes the normal values as 0 to 15 mm. per hour (4 mm. average) for men and 0 to 20 mm. per hour (5 mm. average) for women. Some have altered the test by collecting the blood in dry oxalate mixtures (allowing the one blood specimen to be used for other determinations) and then diluting 4 parts of this blood with 1 part of the citrate solution; the stated normal range in this case is up to 10 mm. per hour for both sexes.

The correction for anemia does not depend on the size of the tube. The Westergren and Wintrobe-Landsberg methods both utilize tubes of 2.5 mm. bore, and only the latter is corrected (to a 47% hematocrit for men and a 42% hematocrit for women); the Cutler method (5 mm. bore tube) does not have a correction, yet the Rourke-Ernstene method (4 mm. bore tube) is corrected to a 45% hematocrit for both sexes. The sedimentation rate is corrected for anemia because anemic patients often exhibit

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

increased sedimentation rates, red blood cells diluted with the plasma of the same person will fall faster than undiluted cells, and women (having less red blood cells than men) have a faster sedimentation rate. The need of correction is questioned by many, since the methods of correction are arbitrary and crude; in some anemia (hypochromic microcytic anemia, sickle-cell anemia, and those forms with marked poikilocytosis) there is no increase in sedimentation rate, the degree of anemia is not always correlated with the elevation of the sedimentation rate, and many anemic patients with another pathological process have a normal sedimentation rate when the abnormal rate is corrected for the anemia. Because of this difference of opinion, the sedimentation rate should be reported as found (stating the method employed) and as corrected (stating the method of correction and the hematocrit); this will allow the physician to interpret the results as he chooses. The test is nonspecific and not diagnostic of any disease, the sedimentation rate being normal in many diseases. An abnormal rate indicates some pathological state rather than a functional disturbance and is, therefore, useful in differential diagnosis and in following individual cases.

The inquirer gives normal values for the Westergren method. The Wintrobe-Landsberg corrected normals are 0 to 9 mm. per hour (3.7 mm. average) for men and 0 to 20 mm. per hour (9.6 mm. average) for women; using the Hynes and Whitby correction (to a hematocrit of 45% for both sexes), the normal range is 0 to 10 mm. per hour. The normal values for the Cutler method are 2 to 8 mm. per hour (3 to 4 mm. average) for men and 2 to 10 mm. per hour (5 to 6 mm. average) for women. All the methods compare well when measured during the period of constant fall; each, however, has its protagonists depending upon such factors as the laboratory conditions, available personnel, number of manipulations, and dilution of blood. The most reliable methods are the Rourke-Ernstene and the five minute Cutler modification, which measure the maximal rate of fall and require multiple readings; their normals are 0.05 to 0.4 mm. per minute and 0 to 1 mm. per five minutes respectively. Because of the extra height of its tube and other factors, the one hour reading in the Westergren method is directly proportional to the settling velocity during the period of constant fall. The Wintrobe-Landsberg method is widely used in the United States, since the hematocrit, buffy coat, and character of the plasma can be studied with the same tube of blood.

INFECTIOUS MONONUCLEOSIS

To the Editor:—*In the hepatitis that is associated with infectious mononucleosis the following questions arise. 1. Have liver biopsy studies and long-range follow-ups been done to determine whether the liver shows any later signs of cirrhosis following the subsidence of the acute febrile episode? 2. How long do positive function tests (cephalin flocculation) persist? 3. If the liver and spleen are not palpable, is there any proved indication that activity should be limited following mononucleosis? 4. If clinically a patient, aged 21, after having a fairly severe febrile course of mononucleosis, does not feel debilitated, should his activities be restricted?*

M.D., California.

This inquiry was referred to two consultants whose respective replies follow.—Ed.

Answer.—This consultant is not familiar with any work definitely establishing the hepatitis of infectious mononucleosis as a forerunner of hepatic cirrhosis. In college students with infectious mononucleosis the cephalin flocculation and thymol turbidity tests are frequently abnormal three to four weeks after termination of the febrile period. At the end of six to eight weeks these tests are usually normal. A few do not return to normal until three months have elapsed. On the basis of these tests this consultant has never seen evidence suggesting that a case is progressing toward a chronic hepatitis. Contrariwise, these tests have been reported as abnormal in 4 of 12 children with infectious mononucleosis followed for seven months to two and a half years after the disease (*A. M. A. Am. J. Dis. Child.* 84:175 [Aug.] 1952). Even though the liver has never been palpable, the liver function tests often are abnormal at the time a patient is discharged from hospital. Several times a year a worsening or a delayed return toward normal of these tests is observed in students engaging in sports too early during convalescence. Less than ordinary activity is strongly recommended for any patient convalescing from infectious mononucleosis until the sedimentation rate and liver function tests are approaching normal. If there is any hepatomegaly, splenomegaly, or anemia, more stringent limitations would be in order.

Answer.—1. Clinical observations and autopsy and biopsy studies of the liver of patients with infectious mononucleosis indicate that the liver involvement in this disease does not compare in severity or potential danger with that seen in infectious hepatitis. No instance of death from liver failure or acute hepatic necrosis has been observed in patients with infectious mononucleosis. Morphological data indicate that the hepatic alterations in this disease consist chiefly of lymphocytic and mononuclear cell infiltration, but parenchymal necrosis is sparse and uncommon. While an occasional case of cirrhosis following infectious mononucleosis has been reported (*Am. J. Med.* 8:675, 1950) other etiological factors such as alcohol and malnutrition may have been of greater importance than the infectious mononucleosis in the pathogenesis of the cirrhosis. One is justified in concluding that cirrhosis is such a rare sequel of infectious mononucleosis that it is statistically unimportant. 2. Minor alterations of liver function tests may persist for months or even years; but since the hepatic dysfunction is of a benign nature, prolonged therapy or bed rest is not indicated (Spellberg, M. A., Diseases of the Liver, New York, Grune & Stratton, Inc., 1954, pp. 252-256). 3. If the liver and spleen are not enlarged and there is no undue anorexia or fatigability and no marked alterations of liver function tests, activity need not be restricted any longer than in nonhepatic febrile illnesses. 4. The fourth question is answered in 3. In the case mentioned, this young patient's activities should not be restricted anymore than if he were convalescing from a viral pneumonitis or any other febrile illness. Gradual resumption of activities should be undertaken after defervescence.

ERYTHEMA MULTIFORME

To the Editor:—*What is the treatment for erythema multiforme? A 72-year-old man has been getting attacks about once a year, usually in July or August. The first symptoms include severe itching and burning of the eyes (iritis). Within 24 hours there is dermatitis on the right wrist, dermatitis on the fingers, blisters on the glans penis, and ulcerations in the mouth. The most recent attack included exfoliation of the outer layer of the tongue, which is the first time this symptom occurred. The symptoms are usually self-limited—about three weeks. Hydrocortisone is used orally in the eyes and as a decongestant. Meticorten was not used.*

M.D., Pennsylvania.

Answer.—Erythema multiforme is a symptom complex rather than an etiological diagnosis. The cause of this condition varies, and treatment from the standpoint of prevention of further outbreaks, or even to treat intelligently the acute attack, would require study and identification of the underlying precipitating factors. Among the more common causes are bacterial or virus infection, or ingestion of foods or drugs to which the patient may react. A summer recurrence may suggest as a possible cause ingestion of a seasonal food or recurrence of some environmental factor associated with warm weather, such as pollen, plants, or molds that could be absorbed and induce the symptom complex. In the absence of establishing the cause, treatment is purely symptomatic and the following sometime prove helpful: (1) a mild saline cathartic such as milk of magnesia; (2) an antihistaminic given orally, such a tripelennamine hydrochloride (50 mg. every six hours) or chlorprophenpyridamine maleate (2 to 4 mg. three to four times daily); or (3) a broad spectrum antibiotic taken systemically, as for example, erythromycin (200 mg. each four to six hours). The hydrocortisone preparations such as given are also effective in affording temporary relief. Because of their side-effects, the local or topical use is to be preferred over their systemic use. A 1% concentration of hydrocortisone acetate in a water-soluble base is sufficient. If infection is present in the skin lesions, an ointment containing both an antibiotic and an adrenocorticone hormone may be useful, such as Neocortef ointment.

STONE IN GALLBLADDER

To the Editor:—*A 49-year-old woman suffers from slight indigestion. X-ray examination revealed a good functioning gallbladder with one peach-stone-sized calculus. Her mother died at age 70 years from a cancer of the gallbladder. Would you advise cholecystectomy, though the complaints at present are negligible?*

Hans M. Magnus, M.D., Cambria Heights, Queens, N. Y.

Answer.—While the presence of a calculus in the gallbladder probably increases slightly the liability to subsequent formation of cancer of the gallbladder, this is not sufficiently great to be in itself an indication for cholecystectomy. The presence of a normally functioning gallbladder indicates that in this case the calculus has not produced any marked damage to the mucous membrane of the gallbladder or to its muscular wall. The calculus is probably a solitary cholesterol stone that has formed in an aseptic gallbladder and is, apparently, not causing stasis of bile. While many excellent surgeons would, undoubtedly, advise cholecystectomy in this situation as a prophylactic against the subsequent development of more serious gallbladder disease, it is certain that there are also many excellent surgeons who are going about with just such a gallstone and who do not themselves choose to have a cholecystectomy. Since in the present instance the complaints are negligible, it would appear unwise to subject the patient to the hazard of a major surgical operation.

RETINITIS WITH MACULAR EDEMA

To the Editor:—*A patient has had three episodes of retinitis with macular edema, and the last episode is still active. The first attack started in 1949 at age 35. Physical and laboratory studies including x-ray of the skull, sinuses, teeth, and chest, prostatic smears, blood cell counts, sedimentation rate determinations, urine studies, Wassermann test, blood sugar level studies, and blood chemistries have all been negative. On the two previous occasions, the patient spent several weeks in the hospital, the first time having essentially symptomatic treatment, the second stay receiving daily injections of alternating intravenously given typhoid vaccine and slow drip administration of corticotropin (ACTH). The first attack resulted in complete recovery (the right eye only was affected during this siege). The second episode affected both eyes, but after several months the right eye fully recovered, while the left went from 20/15 to 20/15 minus 3. The present episode is being treated with meticorten 30 mg. daily, large doses of vitamin B complex orally, and potassium chloride (1 grain [60 mg.] three times daily). There has been no improvement one week after therapy. A recent physical examination and laboratory studies revealed nothing other than the retinal and macular edema. An otolaryngologist says that although the tonsils were removed during childhood, the right fossa reveals a small tag and the left tonsil has regrown. From the left tonsil he can express "cheesy purulent material." The patient had a cervical adenitis on the right several months ago that improved with four days of treatment with achromycin. The question is whether to do a tonsillectomy now or to wait in the hope the edema will subside without tonsillectomy.*

M.D., Pennsylvania.

Answer.—The patient apparently is in the first stage of a heredomacular degeneration of the Kuhnt-Junius type. During secondary inflammatory episodes tonsillar removal or similar surgical procedures may be followed by ocular aggravation due to dissemination of toxic material into the subnormal macula. If possible, temporizing tonsillar treatment with local silver nitrate applications and the bodily administration of antibiotics with or without sulfas is advisable until the ocular reaction has entirely subsided. Then tonsillar removal may help prevent or reduce future retinal inflammatory attacks. Adrenocortical and supportive treatment as described probably reduces the retinal reaction and therefore its residue if not unduly prolonged. In that case healing may be delayed and ultimate fibrosis increased. There is now no local or bodily treatment that will positively cure the disease or prevent its possible progressive degenerative tendency. Much can be done, however, to prevent or reduce secondary inflammatory attacks by maintaining the highest possible biophysical and biochemical level of well-being. Metabolic abnormalities and autonomic imbalance are important factors in precipitating inflammatory attacks.

PATIENTS USING RUBBER URINALS

To the Editor:—*An elderly man wearing a urinal complains of marked edema of the penis caused apparently by the alkaline reaction of the urine in the pouch. The urinal is made of rubber; no other material of like softness seems to be available at present. The urine when passed is acid due to administration of an adequate number of ammonium chloride tablets, with or without methenamine. The urine turns alkaline quickly after accumulating in the pouch. What acidifying agent can be used in the bag? A penis clamp can be tolerated for about an hour, when it causes marked edema.*

R. J. Kent, M.D., Savannah, N. Y.

Answer.—Irritation with edema of the penis is a common complication in patients wearing a rubber urinal. In most cases, the irritation is caused by the rubber rather than the alkaline reaction of the urine in the pouch. A new type of urinal has been devised made of latex rubber, which usually is more comfortable and is better tolerated. If this apparatus does not relieve the symptoms, possibly the best thing would be to have the patient use a disposable absorbent material in a plastic bag. When the absorbent material is saturated, it can be disposed of and replaced with fresh material.

SCARLET FEVER AND ACUTE RHEUMATIC FEVER

To the Editor:—*Is there any causal relationship between scarlet fever and acute rheumatic fever? Does rheumatic fever occur as a complication of scarlet fever? Does it rarely do so, or does it fairly frequently do so?*

Raymond C. Scannell, M.D., Denver.

Answer.—The exact etiology of rheumatic fever continues to be in doubt. Streptococci have long been associated with rheumatic fevers. For many years scarlet fever in particular has been considered as a possible inciting cause; however, all rheumatic fever patients do not have a history of scarlet fever. Moreover, it has been claimed that rheumatic fever may occur when there is bacteriological evidence of no preceding streptococcic infection. Rheumatic fever is not regarded ordinarily as a complication of scarlet fever. Nevertheless, statistics in the past have shown that the incidence for each of the diseases has risen and declined at about the same time. Streptococcic infections are now at a low point; therefore rheumatic fever should be less prevalent. Hereditary susceptibility has been considered an important factor.

PUS IN THE URINE

To the Editor:—*A patient had pus in urine for about two years. He found this accidentally, as it did not cause trouble, and has tried Gantrisin, Aureomycin, Achromycin, and Erythromycin with no improvement. He is sensitive to penicillin. A culture made from the urine was sterile. He has a large stone in the pelvis of the right kidney. He had an exploratory operation on the left kidney two and one-half years ago, and biopsy showed it to be not malignant but apparently congenitally deformed. I would appreciate help in determining a course of action.*

M.D., Michigan.

Answer.—To find the source of pyuria, the patient should be subjected to a cystoscopic examination, including ureteral catheterization of both kidneys and an estimate of differential renal function. In all probability the stone in the right kidney is causing the pyuria. There would be no object in continuing the use of antibiotic drugs until the stone is removed. It would be impossible to say whether a nephrectomy or nephrotomy would be indicated until the examinations have been completed. A renal stone may be silent symptomatically but is seldom present for long without pathological changes in the kidney.

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A NUTRITIONAL PROGRAM FOR PROLONGATION OF LIFE IN CORONARY ATHEROSCLEROSIS

Lester M. Morrison, M.D., Los Angeles

For the past decade, atherosclerosis has no longer been regarded as the inevitable result of age or the "wearing out" of the arteries but rather as a disorder of lipid and/or lipoprotein metabolism.[1] This occurs in young people and is known as a process beginning in early childhood.[2] It is a paradox that with the birth of the infant, the process of aging or death thus sets in. In considering the difficult problem of treatment for atherosclerosis of the coronary arteries in particular, recognition has now come of some six factors that are most frequently incriminated in the development and treatment of the disease. Briefly stated they are: (1) dietary factors; (2) reduction of body weight; (3) certain agents having pharmacological properties, such as lipotropic substances, female sex hormones, anticoagulating agents, and tobacco; (4) anatomic factors of stress and strain at certain points in the arterial walls; (5) hereditary or familial tendencies; and (6) physical exercise and emotional factors. A report follows of over eight years of controlled studies of certain aspects of the first three factors cited above.

DIETARY FAT AS A CAUSE

The incrimination of dietary fat as the cause of human arteriosclerosis or atherosclerosis dates largely from World War I. After the British blockade of Germany during that war it was noted extensively by German pathologists and clinicians that the incidence of deaths and sickness from coronary and cerebral vascular atherosclerosis fell sharply. After that war, with the lifting of the food blockade and the resumption of the customary fat intake in the diet, the incidence of deaths and morbidity from these diseases rose again to prewar levels in Germany.[3] During World War II history repeated itself as regards the relationship of dietary fat and the incidence of coronary and cerebrovascular arteriosclerosis and/or atherosclerosis. This time the various Scandinavian governments supplied the information that, when fat in the diets of the population had to be reduced to a minimum because of the scarcity of dietary fats, the death and sickness rate from atherosclerosis was likewise reduced to a minimum. As soon as the war ended and dietary fat once again became plentiful, the mortality rate and morbidity rates from coronary and cerebrovascular disease promptly soared to prewar levels and even began to surpass them.[4]

More recently, additional information corroborating these findings was obtained from American military studies such as those of Enos [5] and others. As a consequence, numerous investigations began into the role of lipid metabolism in the production of human and animal atherosclerosis.[6] It was well established that atherosclerosis induced by feeding excessive quantities of cholesterol and fats in the diet could easily be produced in rabbits, rats, dogs, and monkeys.[7] Objections to the validity of any concepts about atherosclerosis derived from such studies were numerous due mainly to species differences. Consequently it was decided that human subjects would provide the soundest approach to the question of any relationship between dietary fats and cholesterol in the production of atherosclerosis. This de-

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From the Crenshaw Hospital.

Read before the Section on General Practice at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

These studies were supported by research grants-in-aid from the Subcommittee on Grants-in-Aid, Committee on Research, Council on Pharmacy and Chemistry, American Medical Association.

[1] (*a*) Dock, W., and others: Current Concepts in the Management of Arteriosclerosis, Bull. New York Acad. Med. **31**: 198, 1955. (*b*) Morrison, L. M.; Hall, L., and Chaney, A. L.: Cholesterol Metabolism: Blood Serum Cholesterol and Ester Levels in 200 Cases of Acute Coronary Thrombosis, Am. J. M. Sc. **216**: 32, 1948.

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[3] Hueper, W. C.: Arteriosclerosis, Arch. Path. **38**: 162, 245, and 350, 1944; **39**: 51, 117, and 187, 1945.

[4] Morrison, L. M.: Diet and Atherosclerosis, Ann. Int. Med. **37**: 1172, 1952.

[5] Enos, W. F., Jr.; Holmes, R. H., and Beyer, J.: Coronary Disease Among United States Soldiers Killed in Action in Korea, J. A. M. A. **152**: 1090 (July 18) 1953.

[6] Steiner, A.: Action on Experimental Aortic Atherosclerosis, Proc. Soc. Exper. Biol. & Med. **39**: 411, 1938. Morrison, L. M., and Gonzales, W. F.: The Results of Treatment of Coronary Arteriosclerosis with Choline, Am. Heart J. **39**: 729, 1950.

[7] Morrison, L. M.: Effect of Choline on the Prevention of Experimental Atherosclerosis, Geriatrics **4**: 236, 1949. Steiner, A., and Kendall, F. E.: Atherosclerosis and Arteriosclerosis in Dogs Following Ingestion of Cholesterol and Thiouracil, Arch. Path. **42**: 433, 1946. Taylor, C. B.; Langdell, R. D., and Cox, G. E.: Atherosclerosis in Monkeys with Levels of Serum Cholesterol, Within the "So-Called Normal" Human Range, Fed. Proc. **14** (pt. 1): 420, 1955.

cision to use human subjects stemmed from the now overwhelming mass of evidence that atherosclerosis was no longer the inevitable result of age or a "wearing out" or "rusting" of the arteries. I have approached this problem as a disorder in lipid or lipoprotein metabolism, which takes its toll of young adults as well as older persons. This view is borne out by the findings of various authors such as Dock,[1a] myself,[8] and others that the atherosclerotic process in the American adult is already well developed when the individual is in his 30's.

STUDY OF DIETARY FAT INTAKE

Accordingly, in 1946, I [9] began the study of 100 patients to determine the relationship of dietary fat intake to the incidence of atherosclerosis. These patients had proved cases of coronary thrombosis with myocardial infarction and had survived their initial attack. This particular disease was selected because it had been demonstrated by various observers [10] that in 90% or more of the patients with coronary thrombosis and myocardial infarction the cause of the disease was atherosclerosis of the coronary arteries. Thus a direct approach to human atherosclerosis was available. The 100 patients described above were divided into two groups of 50 patients each. Each group consisted of unselected patients with proved myocardial infarction who survived their initial attack and whose condition was uncomplicated by other disease such as hypertension, diabetes mellitus, nephritis, thyroid disease, xanthomatosis, or other conditions in which a complicating metabolic disorder was present. The two groups of 50 patients each consisted of a control group in which no dietary restriction of fat was imposed and a treated group in which the dietary fat was restricted from 20 to 25 gm. of fat daily. In both groups any customary medicaments of a supportive character were given when indicated.

Survival Rates in Patients with Coronary Thrombosis and Infarction After Eight Years

No. of Cases	Deaths	Survival
Normal Prethrombosis Diet		
50	38 (76%)	12 (24%)
20-25 Gm. Fat-Cholesterol Intake		
50	22 (44%)	28 (56%)

After three years of observation of these two groups, I used the criterion of mortality rate only to test the validity of the concept that dietary fat was related directly to the production of atherosclerosis in the human. Mortality rates in these cases appeared to offer final conclusions regarding the arrest or regression of the atherosclerotic process and did not involve objectionable features such as interpretations of subjective symptoms in patients or similar problematical data. At the end of the three year study period [9] it was found that 35 of the 50 patients in the control group survived, 15, or approximately one-third, having died of cardiac disease, mostly recurrent coronary thrombosis. In contrast, 43 of the 50 patients who were dietetically treated (through dietary fat restrictions) survived, 7 of them having died of cardiac disease, mostly coronary thrombosis with myocardial infarction. These cases were too few to be of statistical significance, yet they did suggest that dietary fat restriction directly retarded the progress or development of atherosclerosis of the coronary arteries.

RESULT OF EIGHT YEAR FOLLOW-UP STUDY

Since the above studies were begun in 1946, eight years have elapsed in which the original 100 patients with coronary atherosclerosis have been followed. The original 50 dietetically treated patients and their families were continually supervised as regards adherence to the diet. These patients originally assured their full coöperation; patients who could not be relied upon for complete cooperation were dropped from this study at the outset. Cooperation in adherence to the diet appeared to be assured by the statements of the families involved as well as by the patients themselves. Full cooperation from patients resulted in falls in serum lipid levels and decreases in body weights. In the three-year follow-up of these 50 dietetically treated patients, it was noted that the average fall in weight was 21 lb. (9.5 kg.) for males and 17 lb. (8 kg.) for females. Total serum lipid levels fell from 840 mg. per 100 cc. before treatment to 571 mg. after treatment; total serum cholesterol levels fell from a pretreatment and mean level of 312 mg. to 220 mg. per 100 cc.; and neutral fat fell from 236 mg. to 120 mg. per 100 cc.

After eight years of observation the following number of deaths occurred in both groups of patients as noted in the table. Of the original 50 control patients who had coronary thrombosis and myocardial infarction, only 12 were living; 38 had died mainly of cardiovascular disease. Of the original 50 dietetically treated patients on low-fat, low-cholesterol diets, 28 were living; 22 had died mainly of cardiovascular disease. The mean age for the surviving dietetically treated patients with coronary disease was 68 years and that for the control or nondietetically treated patients was 70 years, the age range for both groups being 40 to 78 years of age. Of the 28 surviving treated patients, 6 were females and 22 were males. Of the 12 surviving control patients, 4 were females and 8 were males.

TYPE OF NUTRITIONAL PROGRAM

As for the diets of both control and dietetically treated groups, as originally noted,[9] the dietary fat content each day for the control group was judged to range from 80 to 160 gm. of fat, with an estimated range of cholesterol intake of from 200 to 1,800 mg. daily. The dietetically treated group consumed an estimated 20 to 25 gm. of fat daily, with a cholesterol intake estimated at 50 to 70 mg. In this group, the caloric intake averaged 1,600 calories comprised of approximately 225 gm. of carbohydrate and 120 gm. of protein. The diet prescribed included a vitamin A content of 9,753 I. U., 2.48 mg. of riboflavin, and 140 mg. of ascorbic acid, all within the normal daily intake limit. In addition, a supplementary vitamin capsule that more than doubled the daily dietary vitamin intake was prescribed to be taken daily. The mineral content of the diet was similarly normal, containing approximately 1.009 gm. of calcium, 1.792 gm. of phosphorus, and 0.0222 gm. of iron. In order to provide additional protein in the diet, a natural supply of vitamin B complex, a minimum of 2 oz. (60 gm.) of whole-wheat germ and 8 gm. of powdered, flavored brewer's yeast was prescribed with fruit and skim milk at least once a day. This combination also utilized the well-known therapeutic action of the lipotropic factors contained in choline, inositol, methionine, cyanocobalamin, and vitamin B_6 in the prevention and treatment of atherosclerosis in experimental animals as well as in patients with coronary artery disease.[11] These lipotropic factors are potentiated by the high-protein, low-fat diet.

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[8] Morrison, L. M., and Gonzalez, W. F.: Effect of Blood Cholesterol Disorders on the Coronary Arteries and Aorta, Geriatrics 5: 188, 1950.

[9] Morrison, L. M.: Reduction of Mortality Rate in Coronary Atherosclerosis by a Low Cholesterol-Low Fat Diet, Am. Heart J. 42: 538, 1951.

[10] Morrison, L. M., and Johnson, K. D.: Cholesterol Content of the Coronary Arteries and Blood in Acute Coronary Artery Thrombosis, Am. Heart J. 39: 31, 1950.

No significant further changes in weight occurred during eight years for either male or female patients in the treated group after the mean pretreatment weights for males dropped from 166 lb. to 145 lb. (75 to 66 kg.) in the three year reports [9] and the mean pretreatment weights for females dropped from 141 lb. to 124 lb. (64 to 56 kg.) after three years of dietary treatment. The control patients' weights, as originally noted, did not appear to undergo any significant alteration. Medication in both groups of patients was usually similar and, when indicated, consisted of digitalis, aminophylline, glyceryl trinitrate (nitroglycerin), or sedatives, as needed by the patients, depending upon their cardiac condition.

MORTALITY RATES AND CAUSE OF DEATH

As noted in the table, if the mortality rates of both groups are estimated percentagewise, they are as follows: After eight years with no treatment, of the 50 patients in the control group who had coronary disease, 12 survived, a survival rate of 24%. After eight years of dietary treatment, of the 50 patients who had coronary disease, 28 patients survived, a survival rate of 56%, or more than double that of the control patients.

A breakdown of the cause of death in each group of patients after eight years of observation indicated that the mortality rates of the patients with coronary disease in the control group are comparable to those described by various authorities.[12] In the control or nontreated group, of the 38 patients who had died, death was due to cardiovascular disease in 22 cases and to extracardiac diseases, including cerebrovascular, in 8 cases. In eight patients death was due to causes that could not be determined. In the patients treated through the nutritional program, of the 22 patients who had died, death was due to cardiovascular disease in nine cases and to extracardiac diseases in eight cases. In five patients death was due to unknown causes.

OVERWEIGHT AS A FACTOR

A significant factor in the evaluation of results obtained with restricted dietary fat intake in this group of patients is weight reduction. As noted in a previous publication [9] and in this one, a weight loss tantamount to some 15% of total body weight occurred after three years of dieting in the treated group of patients with coronary disease. It was originally pointed out by Hippocrates [13] and more recently by the statistical divisions of various life insurance companies and by numerous authorities [1a] that overweight is an important factor in increasing the mortality rate in coronary and cerebrovascular disease. American malnutrition is becoming widespread in the sense that excessive calories are consumed, with an abnormal concentration on carbohydrate and fat intake, and there is loss of essential nutrients from processing refinements and the cooking of foods. As a consequence, "oily dropsy," [1a] or overweight, results and prohibits the ideal weight that patients, particularly those with coronary disease, should maintain for their body build at maturity.

After three years of dietary fat restriction, the dietetically treated patients with coronary disease showed no further significant weight loss or gain. For the five years after this stabilization of weight in the treated group of patients, an appreciable difference in the mortality rates between the two groups of patients is apparent and is not further influenced by additional weight loss or gain. It should also be considered that the dietetically treated group of patients at the end of three years approximated ideal or more normal weight levels and so was a more favorable group of patients to treat than the control patients, whose weights were comparatively unaltered through the period of observation.

CORROBORATIVE FINDINGS OF NEW STUDIES

Since the inception of these studies, new information has been collected by various investigators that now directly correlates the relationship of high-fat dietary intake with high mortality rates from degenerative heart disease and vice versa.[14] The recent studies of American and Oriental soldiers in Korea [5] have served to point sharply to the correlation of dietary fat intake and the incidence of coronary atherosclerosis in both American and Oriental soldiers. This may be significantly linked to the startling increase in both coronary atherosclerosis and the fat and caloric content of the American diet. A description of the moderately high-protein, low-fat, low-cholesterol diet utilized in this study is similar to the diet originally prescribed eight years ago at the outset of these studies by me.[15]

It is of interest to note that a frequent observation in the group of patients treated by the nutritional program described here was a sense of optimism, well-being, and good spirits; increased exercise tolerance and increased working capacity, with decrease or disappearance of anginal symptoms, occurred in certain cases. This study suggests the value of similar surveys utilizing larger numbers of cases for statistical evaluation. In this way the incorporation of a nutritional program as described here can be considered for therapeutic or preventive uses in medical practice.

SUMMARY AND CONCLUSIONS

One hundred patients with proved coronary thrombosis and myocardial infarction were observed over an eight year period of time. The patients were divided into two groups of 50 patients each. One group was the control group of patients who maintained their prethrombosis diets and weights. The treated group of patients was studied and compared as to survival rate resulting from a nutritional program of a low-fat, low-cholesterol diet that was moderately high in protein, supplemented by certain vitamins, and accompanied by a significant loss in weight. After eight years of observation, of the 50 patients in the control or nontreated group, 12 patients had survived, a survival rate of 24%. Of the 50 patients treated through the above nutritional program, 28 patients had survived, a survival rate of 56%. It was noted that the survival rate of postcoronary patients, i. e., with proved coronary atherosclerosis, on a specific nutritional program was more than 100% greater than that of postcoronary patients in a control group who adhered to the typical American diet.

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[11] Bourne, G. H., and Kidder, G. W.: Biochemistry and Physiology of Nutrition, New York, Academic Press, Inc., 1953, vol. 1, p. 303.

[12] Cole, D. R.; Singian, E. B., and Katz, L. N.: The Long-Term Prognosis Following Myocardial Infarction, and Some Factors Which Affect It, Circulation **9**: 321, 1954.

[13] Hippocrates: Medical Works, translated by J. Chadwick and W. N. Mann, Oxford, England, Blackwell Scientific Publications, 1950, p. 154.

[14] Footnotes 1*a* and 5.

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USE OF EXTERNAL ELECTRIC PACEMAKER IN CARDIAC ARREST

Paul M. Zoll, M.D., Arthur J. Linenthal, M.D., Leona R. Norman, M.D., Milton H. Paul, M.D.
and
William Gibson, M.D., Boston

Cardiac arrest presents a critical problem in four different types of clinical situations: (1) in Stokes-Adams disease; (2) during reflex vagal stimulation; (3) during treatment with cardioactive drugs; and (4) during various diagnostic and therapeutic procedures, particularly during anesthesia. It requires emergency resuscitation for which the desperate and often ineffective measures of cardiac puncture, intracardiac drugs, and thoracotomy with cardiac massage have been the only therapy heretofore available.[1] We have developed a new therapeutic approach to the problem of cardiac arrest[2]: an externally applied cardiac pacemaker that stimulates the heart electrically, terminates ventricular standstill, and maintains an externally paced ventricular rhythm for as long as necessary. The electric stimulator functions like a natural intracardiac pacemaker but is under complete external control. The instrument is portable, easily applied, and clinically practicable.

STOKES-ADAMS DISEASE

Stokes-Adams disease consists of attacks of cerebral ischemia due to very slow idioventricular rates, ventricular standstill, ventricular tachycardia, or ventricular fibrillation in patients with atrioventricular heart block.[3] The attacks are manifested by dizziness, syncope, prolonged unconsciousness, and convulsions, and they may end in death. The cardiac origin of such seizures becomes clear when circulatory arrest is observed during an attack; the diagnosis of Stokes-Adams disease should be suspected when heart block of any degree is observed between attacks.

We have now resuscitated 27 patients from Stokes-Adams attacks with the electric pacemaker. Attacks due to very slow idioventricular rates were observed in 8 patients and to ventricular standstill in 24 patients; these episodes of cerebral ischemia were all terminated immediately by electric stimulation. This dramatic effect was observed countless times. Stokes-Adams attacks due to ventricular tachycardia or fibrillation were seen in 14 patients; none of these was stopped by stimulation. In five patients, however, with frequent attacks due to multifocal ventricular tachycardia or fibrillation, continued external stimulation prevented their recurrence. Stimulation was continued after resuscitation in 22 of the patients for periods as long as 109 hours. Continued stimulation was necessary in them to maintain effective circulation, because of persistent absence of spontaneous ventricular beats or because of recurrent ectopic ventricular activity.

The figure shows electrocardiograms from one of these patients and demonstrates effective external stimulation of the heart. The intensity of the electric stimuli (E) was progressively increased until ventricular responses (V) were produced (figure, *A*). Three spontaneous idioventricular complexes (cycle length 2.04 seconds) are seen during ineffective stimulation; during effective stimulation at a faster rate (cycle length 1.11 seconds), they are suppressed. When stimulation was stopped, the spontaneous ventricular pacemaker reappeared after a pause of 4.64 seconds and regained its previous rate within three beats (figure, *B*). Each stimulus (E) produced a ventricular response (V). Each electrocardiographic ventricular response depended upon an electric stimulus as shown by the constant relationship at widely varying rates of stimulation (figure, *C*). During a test period of 5.5 seconds, no stimuli were applied (figure, *D*). No spontaneous ventricular contractions oc-

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From the Yamins Laboratories of the Medical Research Department of the Beth Israel Hospital and the Department of Medicine, Harvard Medical School.

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The discussion of this paper was opened by Drs. Harold N. Segall, Montreal, Canada, and Albert H. Douglas, Jamaica, N. Y.

This study was aided by grants from the U. S. Public Health Service, the Patrons of Research of the Beth Israel Hospital, and the Jacob A. Slosberg Memorial Fund of the Massachusetts Heart Association.

Trainee, National Heart Institute (Dr. Paul) and Research Fellow, American Heart Association (Dr. Gibson).

The cardiac pacemaker used in this study was manufactured by Electrodyne Co., Norwood, Mass.

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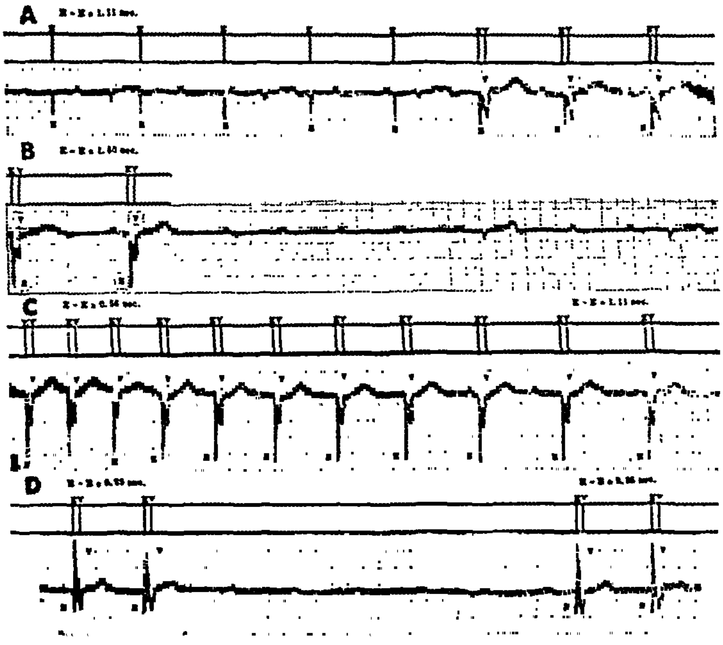
curred during this interval, and the patient lost consciousness. The independent atrial rhythm continued. Resumption of stimuli immediately gave ventricular responses, and the patient revived at once.

The patient was a 71-year-old woman who usually showed complete atrioventricular block, but partial block and normal sinus rhythm were occasionally observed. She suffered frequent and severe syncopal attacks, usually due to ventricular standstill but occasionally due to bursts of ventricular fibrillation. On eight occasions in two months, prolonged stimulation for periods ranging from 6 to 48 hours was necessary to maintain adequate circulation until a spontaneous sustained idioventricular pacemaker reappeared. The intervals of stable rhythms between these periods of stimulation varied from two hours to 19 days. She has now survived for 22 months since the initial resuscitation by the cardiac pacemaker. Her present condition is satisfactory, and she shows no deleterious effects on her mental or cardiac function as a result of either the prolonged stimulation or the syncope. She has had no attacks for 20 months.

In the 27 patients with Stokes-Adams disease resuscitated with the external electric pacemaker, survival is dated from the time that spontaneous ventricular activity returned after the first therapeutic application of stimulation, whether it was used briefly for resuscitation or continuously for maintenance of circulation. Ten patients, four of whom are still alive, survived 1 to 29 months. Duration of stimulation for these patients varied from a few seconds to 109 hours. Of the remaining 17 patients, in whom duration of stimulation was a few seconds to 108 hours, 8 survived 1½ to 16 days, 5 survived 1 to 11 hours, and 4 did not survive the initial period of stimulation.

Twenty-three patients are now dead. Eighteen died of Stokes-Adams attacks because the electric pacemaker was not applied during the fatal attack, because the attack was due to ventricular tachycardia or fibrillation, or because of irreversible cerebral damage due to cardiac arrest before electric stimulation was applied. The remaining five patients died of cardiac tamponade from multiple cardiac punctures, of acute myocardial infarction, of acute bacterial endocarditis, and suddenly after a 10 month interval without syncope.

On the basis of these experiences we have formulated a program for the treatment of a patient with Stokes-Adams attacks. If the patient is seen during a seizure, the external electric pacemaker should be applied at once. If it is not immediately available, one should slap the chest, then puncture the heart with a needle, and finally inject epinephrine into a cardiac chamber. After resuscitation, if sustained, adequate, spontaneous ventricular activity does not reappear, the patient may be kept alive by the external pacemaker. This external stimulation must be continued until intrinsic ventricular activity reappears spontaneously or is aroused by drugs like epinephrine, given preferably by controlled intravenous infusion beginning at 4 mcg. per minute. To maintain blood pressure, arterenol should be given.



Lead aVF; standardization half-normal (1 mv. equals 5 mm.). *A*, interruption of idioventricular rhythm by faster externally paced beats; *B*, resumption of idioventricular rhythm after external stimulation; *C*, effective stimulation at varying rates; *D*, ventricular standstill during temporary interruption of stimulation.

The prevention of recurring Stokes-Adams attacks is a third major problem. When the idioventricular rate is too slow (below 30 per minute), ephedrine sulfate and isopropylarterenol are often useful for long-term maintenance of heart rates between 30 and 45 beats per minute. When they are due to varying atrioventricular conduction, atropine and ephedrine should be tried. When the attacks are due to recurrent ventricular tachycardia or fibrillation, ephedrine again may reduce ectopic activity by increasing the basic ventricular rate; quinidine and procainamide are contraindicated in these patients.

REFLEX VAGAL ARREST

Episodes of cerebral ischemia due to ventricular standstill or fibrillation also occur in patients without Stokes-Adams disease. Certain of these episodes, as in the carotid sinus syndrome, are usually transitory and are clearly due to reflex vagal stimulation. The distinction between Stokes-Adams disease and reflex vagal standstill is of clinical importance because of differences in the course, prognosis, and treatment of each condition. This distinction ultimately depends upon the presence or absence of atrioventricular block between attacks.[3]

External electric stimulation was effective repeatedly in resuscitating three patients with ventricular standstill due to reflex vagal stimulation. In all three, episodes of complete heart block and ventricular arrest repeatedly interrupted normal sinus rhythm abruptly, producing syncope and convulsions. The precipitation of such episodes by carotid sinus pressure and their disappearance after the administration of atropine sulfate established their reflex vagal origin. More than 100 times, in these patients, external electric stimulation terminated ventricular standstill and restored an effective circulation.

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[3] Parkinson, J.; Papp, C., and Evans, W.: The Electrocardiogram of the Stokes-Adams Attack, Brit. Heart J. 3:171, 1941.

STANDSTILL DUE TO DRUG INTOXICATION

A third type of cardiac arrest occurs as a result of depression of cardiac rhythmicity due to drug intoxication. We have observed two patients with attacks of syncope due to digitalis. With the occurrence of sinoatrial block, cardiac activity was maintained by atrioventricular nodal or ventricular pacemakers; intermittent failure of these pacemakers resulted in periods of ventricular standstill lasting as long as one minute. External electric stimulation resuscitated the patients immediately several times. With recession of digitalis effect, seizures stopped. Two patients with ventricular standstill after intravenous administration of procainamide in the treatment of ventricular extrasystoles and tachycardia were also resuscitated promptly by the external electric pacemaker.[4] Experimentally we have observed that the electric pacemaker also produces effective beats during marked cardiac slowing due to quinidine.

UNEXPECTED CIRCULATORY ARREST

In addition to patients with Stokes-Adams disease and reflex vagal standstill, circulatory arrest may also occur in a third group of patients. Young, healthy individuals without heart disease may develop circulatory arrest unexpectedly, while undergoing various diagnostic and therapeutic procedures, particularly under anesthesia. Though infrequent, each such accident is a dreadful catastrophe. The commonly recognized mechanisms of unexpected circulatory arrest are ventricular standstill or fibrillation; standstill is the usual cause (88% according to Stephenson and co-workers [5]). Reflex vagal stimulation appears to be a frequent precipitating factor.[5]

Electric stimulation has been effective in a number of cases of unexpected circulatory arrest. In two cases of ventricular standstill associated with cardiac surgery, one observed by us [2c] and one reported by Bailey and co-workers,[6] effective ventricular beats were produced by external or direct stimulation; despite this temporary cardiac resuscitation, however, both patients died because of unsuccessful cardiac surgery. Three other patients recovered completely after external electric cardiac resuscitation. Darsie and Dammann [7] reported a patient who, after cardiac surgery, developed complete heart block with a slow idioventricular rhythm and then persistent ventricular standstill. External stimulation was necessary for 63 hours to maintain an adequate circulation; normal atrioventricular conduction then returned and the patient recovered completely. In a second patient, reported by Douglas,[8] circulatory arrest occurred suddenly during a pericardicentesis; within 2 minutes external electric stimulation was applied and resuscitated the patient promptly. The third patient was reported to us by Davis.[9] Cardiac arrest occurred unexpectedly at the end of a long abdominal exploration. External electric stimulation of the heart was applied after 2½ minutes of arrest and resuscitated the patient promptly. Standstill recurred three times in the next two hours; each time the electric pacemaker restarted the heart promptly and the patient recovered completely.

We attempted resuscitation with the cardiac pacemaker unsuccessfully (after delays of a few minutes to two hours) in eight patients who developed circulatory arrest unexpectedly during jugular puncture, intravenous pyelography, bronchography, endotracheal intubation, cardiac catheterization, cholecystectomy, hipnailing, and cardiac surgery. These failures show that the problem of unexpected circulatory arrest is twofold. First, effective ventricular beats cannot be stimulated during ventricular fibrillation. Second, the responsiveness of the heart to stimulation diminishes progressively with continued anoxia. The time interval between circulatory arrest and the resumption of effective ventricular output must be brief, probably less than 3 or 4 minutes, if cerebral and cardiac function is to return unimpaired. Avoidance of excessive delay depends upon immediate recognition of the circulatory arrest and immediate institution of a prearranged program for resuscitation.

TREATMENT OF UNEXPECTED CIRCULATORY ARREST

Crucial delay in recognizing the onset of arrest would be avoided by a practical monitoring device to signal immediately the cessation of circulation. Ideally, such an alarm system should be simple and cheap enough to allow its routine application to all patients during anesthesia. Time is so vital after the onset of circulatory arrest that the anesthetist should announce its passage at 10 or 15 second intervals until circulation has been restored.

Since ventricular standstill is the more frequent cause of circulatory arrest, treatment for standstill should be instituted immediately unless the mechanism is known to be fibrillation. Although electrocardiographic identification of the cardiac mechanism is useful, treatment should not be delayed to obtain a tracing but external electric cardiac stimulation should be applied at once. While awaiting the electric pacemaker, one should stimulate the heart mechanically by slapping the precordium forcefully, by cardiac needle puncture, or by cardiac massage through the diaphragm when the abdomen is open. These measures are simple and immediately available but are frequently ineffective. If the electric pacemaker is close at hand and if the personnel are familiar with its use, it can be applied within 30 to 40 seconds. Auxiliary measures such as artificial respiration with oxygen, blood transfusion, and vasodepressor drugs may be necessary to maintain an adequate blood flow.

If the initial mechanism is ventricular fibrillation, or if the cardiac pacemaker fails to resuscitate the patient within one minute from the onset of arrest, the chest must be opened promptly and the heart massaged. If ventricular fibrillation persists in spite of effective massage, defibrillation should be attempted. Drugs, such as potassium chloride, procaine, or procainamide, may be injected into the heart, or countershock (60 cycle A. C., 120 to 150 volts, 0.1 second) may be applied across large electrodes on the heart.

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[4] Fredericks, P. A.: Personal communication to the authors. Douglas, A. H.: Personal communication to the authors.

[5] Stephenson, H. E., Jr.; Reid, L. C., and Hinton, J. W.: Some Common Denominators in 1200 Cases of Cardiac Arrest, Ann. Surg. **137**: 731, 1953.

[6] Bailey, C. P.; Cookson, B. A.; Downing, D. F., and Neptune, W. B.: Cardiac Surgery Under Hypothermia, J. Thoracic Surg. **27**: 73, 1954.

[7] Darsie, M. L., and Dammann, J. S.: An Electronic Cardiac Pacemaker—Laboratory and Clinical Applications, Anesth. & Analg., to be published.

[8] Douglas, A. H.: Personal communication to the authors.

[9] Davis, F. E.: Personal communication to the authors.

Ventricular standstill may persist despite effective massage, may recur after massage, or may follow defibrillation; the electric pacemaker may then be applied directly to the heart and epinephrine hydrochloride (0.1 to 0.5 ml. of 1:1,000 aqueous solution) may be injected into the left atrial or left ventricular cavity. If resuscitation is successful, the patient must be under constant observation for two or three days, because arrest may recur. A monitor of the cardiac activity should be used to signal immediately the cessation of circulation, and the electric pacemaker should be attached and ready for instant use.

SUMMARY

A method of external electric stimulation has been developed that will arouse the heart from ventricular standstill and will maintain effective, externally paced beats for as long as necessary. It has been used successfully in the treatment of cardiac arrest occurring in Stokes-Adams disease, during reflex vagal stimulation, during treatment with cardioactive drugs, and during various diagnostic and therapeutic procedures.

ADDENDUM

Since submission of this paper, four additional patients have been resuscitated successfully from unexpected cardiac arrest.

330 Brookline Ave. (15) (Dr. Zoll).

TREATMENT OF ACUTE INFECTIOUS HEPATITIS IN THE ARMED FORCES

ADVANTAGES OF AD LIB. BED REST AND EARLY RECONDITIONING

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Lieut. Commander Richard D. Eckhardt, U. S. N., Joaquin G. Cigarroa, M.D., Laredo, Texas
Norman Deane, M.D., New York, Robert W. Reifenstein, M.D., Syracuse, N. Y.
Clifford W. Smith, M.D., Hines, Ill.
and
Charles S. Davidson, M.D., Boston

Prior to World War II, the treatment of acute infectious hepatitis, or catarrhal jaundice as it was then frequently called, was the same as for other viral diseases: rest was prescribed during the acute phase but not enforced after the patient felt well and jaundice had begun to subside. During World War II, it was noted that relapses seemed to be associated with early ambulation, and, in addition, in three controlled studies [1] it was shown that patients treated with a high-protein diet and strict bed rest had a shorter duration of hospitalization than those on a regimen of ad lib. rest and ad lib. diet. Emphasis was placed on an exercise tolerance test as a means of detecting harmful residual activity of the disease.[2]

As a result of these studies, there has been general agreement for the last 10 years that rest in bed should be strict and should be continued as long as the patient has symptoms, or a tender, enlarged liver, or the liver function tests are abnormal. As a direct consequence of these ideas, the average duration of hospitalization of military personnel with infectious hepatitis increased from an average of 30 days during World War II to 60 days in the period just before the Korean war.[3] The average patient was disabled for a week before hospitalization and required two to three weeks of reconditioning before he could return to duty. Thus, the total duration of disability surpassed 80 days.

This drain on military manpower, along with more recent observations [4] suggesting that strict bed rest might not be as essential as heretofore thought, emphasized the need for a controlled study to determine the safety of a more liberal regimen of rest and less prolonged hospitalization. The recent epidemic of viral hepatitis among American military personnel serving in the Far Eastern Theater of Operations and the establishment in 1950 of a hepatitis treatment center at the United States Army Hospital, Kyoto, Japan, afforded an excellent opportunity to reinvestigate the effects of rest and diet on the course of the disease. The present report is a summary of studies conducted under the auspices of the commission on liver disease of the Armed Forces Epidemiologi-

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From the Thorndike Memorial Laboratory, Boston City Hospital, the departments of medicine and preventive medicine, Harvard Medical School, and the Army Medical Service Graduate School, Walter Reed Army Medical Center, Washington, D. C. Dr. Chalmers is now at the Lemuel Shattuck Hospital, Boston; Dr. Reynolds at the University of Washington School of Medicine, Seattle; and Dr. Eckhardt at the Veterans Administration Hospital, Iowa City.

Read before the Section on Military Medicine at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 7, 1955.

This investigation was sponsored by the Commission on Liver Disease, Armed Forces Epidemiological Board, and was supported by a grant from the Office of the Surgeon General, U. S. Army, Washington, D. C.

The discussion of this paper was opened by Drs. W. Paul Havens Jr. and Lester J. Pope.

[1] (*a*) Barker, M. H.; Capps, R. B., and Allen, F. W.: Acute Infectious Hepatitis in the Mediterranean Theater, Including Acute Hepatitis Without Jaundice, J. A. M. A. **128**:997 (Aug. 4) 1945. (*b*) Hoagland, C. L., and Shank, R. E.: Infectious Hepatitis: A Review of 200 Cases, ibid. **130**:615 (March 9) 1946. (*c*) Hughes, J. D.: Treatment of Infectious Hepatitis by Diet and Rest, Bull. U. S. Army M. Dept. **4**: 662, 1945.

[2] Capps, R. B., and Barker, M. H.: The Management of Infectious Hepatitis, Ann. Int. Med. **26**:405, 1947.

[3] Swift, W. E., Jr., and others: Symposium on Viral Hepatitis: Clinical Course of Viral Hepatitis and the Effect of Exercise During Convalescence, Am. J. Med. **8**:614, 1950.

[4] Colbert, J. W., Jr.: Effect of Exercise Simulating Field Duty upon Hepatitis Patients with Abnormal Bromsulphalein Dye Retention, report submitted to the Office of The Surgeon General of the Army, May 10, 1951. Klatskin, G., and Rappaport, E. M.: Late Residuals in Presumably Cured Acute Infectious Hepatitis, Ann. Int. Med. **26**:13, 1947. Swift.[3]

cal Board. A detailed presentation of the design and results has been published elsewhere.[5]

EXPERIMENTAL DESIGN AND METHODS

Patients were admitted to one of the treatment groups by a system of randomization designed so that the medical officer admitting a patient to the study did not know at the time of acceptance what treatment the patient was to receive. The 126 patients admitted to the two strict bed rest wards were required to stay in bed at all times, except for one trip to the bathroom per day and a shower twice a week. Verification of adherence to this schedule was provided by inspection of the ward four to six times daily, at irregular intervals, throughout the period of hospitalization. On the two ad lib. rest wards no effort was made to control the activity of the 127 patients, except that they were required to remain on the ward and to rest in bed for one hour after each meal. They were, however, allowed to remain in bed if they felt sick. The degree of activity indulged in was recorded each day.

Results of Treatment of Patients with Acute Infectious Hepatitis

	First Study		Second Study	
Bed Rest	Strict	Ad Lib.	Ad Lib.	Ad Lib.
Reconditioning	Delayed	Delayed	Early	Delayed
Total patients	126	127	95	94
Duration of acute illness, days	30	28	34	28
Patients with early sulfobromophthalein relapses, %	8	6	2	5
Duration of hospitalization, days*	64	63	51	47
Total patients given complete follow-up examination	46	49	40	41
Follow-up examination findings				
Significant symptoms, %	10	12	2	2
Palpable livers, %	12	12	23	19
Liver tenderness, %	12	14	19	0
Abnormal				
Serum bilirubin, %	0	6	0	7
Sulfobromophthalein retention, %†	2	6	7	5
Thymol turbidity, %	2	8	5	5
"Abnormal" patients at time of follow-up, %‡	13	16	10	5
Rehospitalized after discharge, %§	11	6	2	0

* Including time at reconditioning center.

† All abnormal sulfobromophthalein retentions were between 5 and 10%.

‡ "Abnormal" patients were determined by a point score system set up before the study. Thus each category of abnormality, including symptoms, individual physical signs, and liver function tests, was given 1 or 2 points according to clinical significance, and patients with 3 or more points were termed "abnormal."

§ For complaints possibly but not necessarily related to previous hepatitis. No patients had known relapses with jaundice.

In a second study all patients were treated with ad lib. rest, while varying dietary regimens were being compared. In a group of 95 patients, who were assigned at random on admission, strenuous physical reconditioning was started as soon as the total serum bilirubin level was 1.5 mg. per 100 ml. or below and the sulfobromophthalein retention 5% or less in 45 minutes. Ninety-four had delayed reconditioning and remained in the hospital an additional eight days as controls. The early group received an extra week of reconditioning so that the total observation period would be the same for each group. Clinical examinations and liver function tests were performed on all patients twice a week. The sulfobromophthalein test, with 5 mg. administered per kilogram of body weight, was performed once weekly from the time the total serum bilirubin level was 1.5 mg. per 100 ml. or under until the patient's discharge to duty.

One hundred of the 253 patients in the first study and 88 of the 189 in the second were selected at random for follow-up examinations from 4 to 18 months after return to duty (averages 12 and 8 months respectively). Information consisting of data gathered from a careful medical history and physical examination, usually by one of us, and from the performance of liver function tests, including that for sulfobromophthalein retention, was obtained on 176 of the 188 (94%), and incomplete data were obtained on an additional 7 patients (3%). One of us (C. W. S.) examined 29 former patients at Sasebo, Japan, while they were on their way back to the United States from Korea. One hundred forty were seen by three of us (J. G. C., N. D., and R. W. R.) after return to their homes or new assignments in the U. S. Specimens of serum from these and 10 others examined by cooperating doctors were sent to the research laboratory in Boston for analysis. Four of the patients were examined at the Army hepatitis center in Germany.

RESULTS

Two hundred fifty-three patients were included in the first study. Since there was no demonstrable interrelationship between the effects of rest and diet, for this report the patients on the two ad lib. rest wards were combined for comparison with those on the two strict bed rest wards. The results are summarized in the table. The duration of the acute illness, defined as the time from admission to findings of a total serum bilirubin level of 1.5 mg. per 100 ml. or less and a sulfobromophthalein retention of 5% or less in 45 minutes, was essentially the same for the two groups. The relation of duration of illness (treatment effect) to the height of the initial level of serum bilirubin is shown in figure 1. The findings in

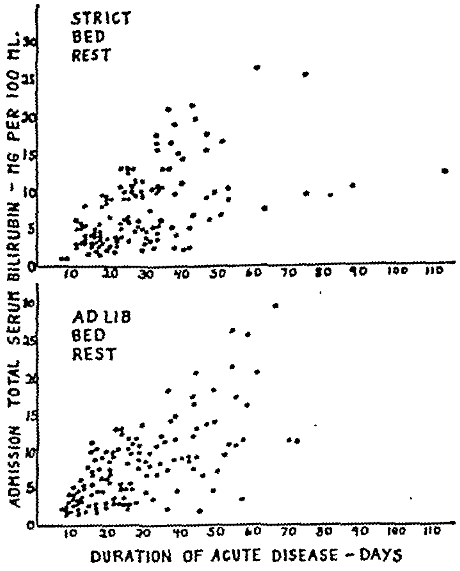

Fig. 1.—The relation of level of total serum bilirubin found on admission for treatment of acute infectious hepatitis to duration of acute illness in each treatment group.

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[5] Chalmers, T. C., and others: The Treatment of Acute Infectious Hepatitis: Controlled Studies of Effects of Diet, Rest, and Physical Reconditioning on Acute Course of Disease and on Incidence of Relapses and Residual Abnormalities, J. Clin. Invest. 34: 1163, 1955.

the two groups were similar. There was no difference between the treatment groups in the rate of fall of the serum bilirubin level or in the rate of the disappearance of symptoms and signs of the disease. In particular, there was no evidence that ad lib. rest resulted in prolongation of hepatic tenderness or enlargement (fig. 2). Flocculation and thymol turbidity tests were the same in the two groups. During the convalescent period, an equal percentage of each group had a return of abnormal sulfobromophthalein retention lasting an average of 32 days and unaccompanied by symptoms or jaundice. In the follow-up study it was found that 5 of the 46 patients treated with strict bed rest and 3 of the 49 patients treated with ad lib. rest had been hospitalized for more than one day for symptoms and findings possibly related to their previous acute hepatitis. No case of recurrent jaundice was seen. The occurrence of symptoms after discharge to duty was equal in the two groups (fig. 3). An approximately equal number in each group on follow-up examination were found to have residual abnormalities in the realms of symptoms, signs, and liver function tests, most of which were considered to be minor in importance.

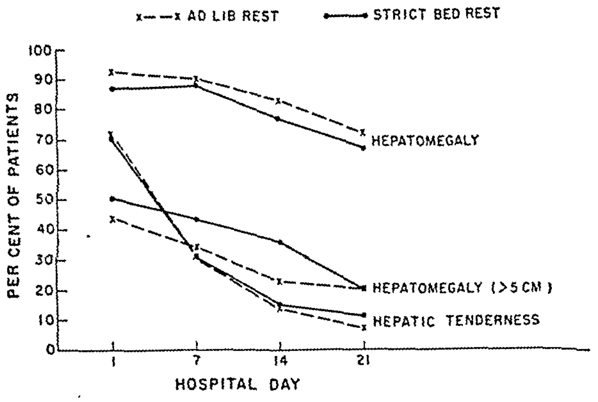

Fig. 2.—Frequency of liver enlargement and tenderness in first study of treatment of patients with acute infectious hepatitis.

In the second study, 95 patients subjected to early strenuous exertion at a physical reconditioning center revealed minor rises in level of total serum bilirubin and sulfobromophthalein following tests, as well as an increased occurrence of symptoms and nontender hepatomegaly during the first week of reconditioning when compared with the control group of 94 patients kept in the hospital. Although statistically significant, these changes were not considered to be of clinical significance because they were small, they disappeared in spite of continued exercise, they were seldom combined in the same patient, and they were not accompanied by unequivocal residual abnormalities in the follow-up study. Recurrent clinical jaundice was never seen after exercise. During the interval following discharge, only one of the patients included in the follow-up examination was hospitalized for a possible recurrence without jaundice. During the interval more of the patients with early reconditioning had vague right upper quadrant pains (fig. 3), and significantly more on follow-up examination had tender livers (see table). In view of lack of significant disability or other more objective abnormalities, clinical significance of these findings is unknown.

COMMENT

Thus, the previous belief that bed rest should be enforced after a patient feels well enough to be up and around his hospital ward has not been confirmed by the studies briefly summarized above. Likewise, no definitely deleterious effects of strenuous exercise early in convalescence have been demonstrated. Before recommendations can be made for a distinct change in the routine treatment of hepatitis, it is necessary to consider possible explanations for the discrepancies between data of previous and present studies. One or more of the following three factors may be operative: (1) inadequacies or misinterpretations of the present study, (2) a distinct change in the disease or clinical material, or (3) inadequacies or misinterpretations of past studies.

Except for the fact that it was impossible to rotate the patients among wards and to rotate the doctors among treatment groups, thus controlling unknown ward and doctor "effects," the studies reported above were well controlled. Analysis of 34 variables other than treatment that might have influenced the results revealed the groups of patients in the first study to be entirely similar. Thus, there was no evidence that the patients on the strict bed rest regimen were by chance more severely ill. On numerous daily "bed checks," no more than 10% of these patients were caught out of bed more than the allowed amount. In contrast, after the first few days of hospitalization none of the ad lib. rest patients spent all day in bed, and by the seventh day more than 50% of the patients were out of bed more than 50% of each day. Most of these patients were still jaundiced. Thus, the fact that the two groups of patients received distinctly different treatment was well documented. The number of patients was large enough to make it extremely unlikely that a real difference in favor of strict bed rest could by chance have been undetected. Finally, the follow-up study was adequate in terms of percentage of selected patients contacted.

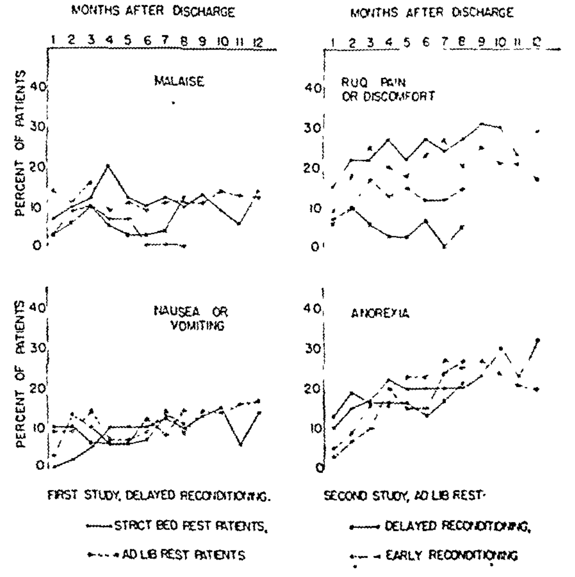

Fig. 3.—History, obtained at follow-up examinations, of symptoms during each month after patient's discharge from hospital. The rise in rates is probably the result of the better memory of the patients for recent complaints.

A comparison of the occurrence of symptoms, depth and duration of jaundice, and mortality reported in this epidemic and in previous epidemics of infectious hepatitis among military personnel [5] revealed no differences sufficient to explain the lack of effectiveness of bed rest in this epidemic. It is possible that more of the patients studied during World War II had homologous serum jaundice rather than infectious hepatitis, but this would seem to be an unlikely explanation of the enigma. The only striking difference lies in the incidence of relapses with jaundice. The 5% incidence encountered in patients studied in Italy during World War II [1a] may have been a manifestation of a more severe disease or may have represented reinfection accompanying the administration of plasma to the more severely ill patients. There is no doubt that the soldiers who were infected with hepatitis in Korea were less battle weary and better fed than those hospitalized in Italy at the height of the fighting in World War II. It is possible but has not been demonstrated [6] that depleted soldiers may have a more serious illness requiring more "conservative" treatment.

The most likely explanation for the discrepancies between our studies and past ones seems to lie in interpretations of the studies on which the conclusions about the essentiality of bed rest were based. In the three studies referred to above,[1] the effects of rest and diet were not differentiated, and the entire beneficial effect may have been due to diet. In addition, other factors that might have influenced the course were not strictly controlled, and the criteria for treatment effect were the durations of hospitalization rather than the more objective liver function test criteria employed in the present studies. Finally, fluctuations of clinical and laboratory tests occurring after ambulation, previously presented as data confirming the efficacy of bed rest, cannot be attributed to the ambulation without control data. In the study reported herein, minor fluctuations occurred at the time of ambulation of the patients on a regimen of bed rest with the same frequency as in the patients who had been up and around throughout the acute period of their disease.

The observation at the Army hepatitis center in postwar Germany that exercise had an adverse effect only in the patients whose serum bilirubin levels were above 3 mg. per 100 ml.[3] confirms the World War II experience that the forced exercising of jaundiced patients was accompanied by a high relapse rate. In the present studies no jaundiced patients were forced to exercise. The changes associated with early reconditioning in the second study and the persistence of hepatic tenderness in those patients suggest that there may be an association between strenuous exertion early in convalescence and liver function, but the clinical importance of this association seems minimal.

It should be emphasized that in these studies the ad lib. rest regimen was not started until an average of 10 days after the onset of symptoms. The patients were never forced to stay out of bed or to perform any ward duties and were confined to their hospital wards. The study offers no evidence, therefore, that rest is not advantageous in the earliest stages of the disease or when the patient feels sick. Unless these points are kept in mind, there will be some unfortunate misinterpretation of the conclusion that strict bed rest need not be enforced after the patient feels well.

The advantages of a regimen of ad lib. rest are obvious. Enforced bed rest may in itself be a debilitating disease with a discouragingly prolonged and symptomatic convalescence. It may be complicated, at least among older patients, by serious vascular accidents, renal lithiasis, osteoporosis, bed sores, or infection. From the military standpoint, the elimination of enforced bed rest and the resultant earlier return to full activity, demonstrated by the present studies to be safe procedures, will result in substantial savings in manpower and the expense of hospitalization.

SUMMARY AND CONCLUSIONS

A carefully controlled study of the effects of strict bed rest in the treatment of acute infectious hepatitis has failed to confirm its advantages after the earliest stages of the disease. It was found that patients treated with ad lib. rest could be started on physical reconditioning programs much earlier because they were not afflicted with the debilitating effects of prolonged rest in bed and did not require a convalescent period of gradually increasing ambulation.

On the basis of the experiences summarized above the following principles of treatment are suggested: 1. A patient with acute infectious hepatitis should be confined to his hospital ward or home and encouraged to stay in bed if he feels sick, but he need not be confined to bed if he feels like getting up, except for an hour's rest after each meal. 2. The level of serum bilirubin concentration should be checked at convenient intervals until it drops below 1.5 mg. per 100 ml. If the sulfobromophthalein retention determined at this time is 5% or less in 45 minutes, the patient may begin to resume normal activity but should have the bilirubin level determined and sulfobromophthalein test repeated after two to four weeks. 3. If the sulfobromophthalein retention stabilizes at between 5 and 10%, the patient may be discharged with safety. Those patients with persistently higher levels of retention or with fluctuating total serum bilirubin levels will require individual management. Liver biopsy may be indicated in the evaluation of these patients. 4. Recurrent abnormalities of the liver function tests will occasionally occur after return to normal activity and may be sufficient reason for reconfinement of the patient.

170 Morton St., Boston 30 (Dr. Chalmers).

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6. McFarlan, A. M.: The Epidemiology of Infective Hepatitis in Some Units of the British Army in Sicily and Great Britain, 1943-4, Quart. J. Med. 14: 125, 1945.

Chloramphenicol.—The discovery of chloramphenicol (Chloromycetin) by Burkholder in 1947 established the fact that an antibiotic effective against a wide variety of microorganisms could be produced by microorganisms isolated from natural sources. Such substances are now known as "broad spectrum" antibiotics. Chloramphenicol was originally obtained from a soil sample collected in a field in Venezuela and from a similar organism isolated from a compost soil in Illinois. The original microorganism was named Streptomyces venezuelae. However, other strains of actinomycete also produce the antibiotic.—P. P. Regna, Ph.D., Chemistry of Antibiotics of Clinical Importance, *The American Journal of Medicine*, May, 1955.

EDUCATIONAL NEEDS—ANESTHESIOLOGIST'S RESPONSE

Ralph S. Sappenfield, M.D., Miami, Fla.

The development of the field of anesthesiology in the past two decades is built upon the cornerstone hewn by such men as Waters, Lundy, Guedel, Bourne, Griffith, and Leigh. This growth gained a new impetus after World War II that added strength, an expansion of services, and a promise in the field of anesthesia to fulfill the ideals of organized medicine and to meet the demands of a new concept in patient care. Basic knowledge in this field has expanded to cover a wider range of subjects and skills from an era when it consisted almost exclusively of the technical ability to render a patient insensitive to pain. Now, the versatility of the present-day anesthesiologist is utilized in many ways other than administering anesthetics. Today, through his knowledge of the basic sciences, the anesthesiologist is also a clinical physiologist and pharmacologist.[1]

When we think of the long period involved in the laying of this foundation of present-day anesthesia, our thoughts drift from that Spanish physician who discovered a drug now known as ether to Crawford Long and William Morton. Progress remained very slow for a long time, probably because of the many problems that existed in the over-all picture of medicine. Now many have entered this field having recognized the importance and quality of the intellectual challenge and are building a structure of improved care with greater safety to our patients.

ADVANCEMENT OF EDUCATION AND RESEARCH FACILITIES

During this early period of medical development with its complex problems, the American Medical Association was conceived and founded upon certain basic principles—one of which was the advancement of education and research facilities. The need to encourage, nurture, and stimulate those ideals in well-founded institutions was only a part of the program; the need to point out and to abolish the diploma mill was also most flagrant. The results of this effort are gratifying—undergraduate and graduate medical education have been elevated to a plane that is mandatory of a progressive attitude. The report of a two and one-half year survey of postgraduate medical education by the Council on Medical Education and Hospitals was published in THE JOURNAL.[2] This report is not only quite complete and informative but most pleasing regarding educational facilities and accomplishments in the United States today.

The American hospital administrators, because of their feeling of a moral and legal responsibility for the quality of medical care in their hospitals, are concerned that the practice of medicine be carried out properly, and they realize that this responsibility requires understanding, education, and proper organization. They also feel that many problems must be considered from the viewpoint of the medical profession for good patient care. The American Medical Association and the various American boards have set up standards that assure us of adequate postgraduate training programs. At the present time there are 185 residency training programs in anesthesiology with 746 residents in the United States receiving training under these standards.[3] The growth of this program has been great. With this growth in research and knowledge, and a better understanding of preoperative and postoperative care, many operations can now be performed that before would have been considered impossible or too serious a surgical risk. Modern anesthesia has removed this limiting factor in the surgeon's work. Research and knowledge in anesthesia have been developed more rapidly than their application could be transferred to the patient in the operating room. A quality of anesthesia care equal to the quality of surgical care is lacking in too many localities. This critical shortage of adequate anesthesia care has been discussed at conferences of hospital administrators throughout the country. These individuals fully realize the trend for the general practitioner to locate near large medical centers that have already attracted our trained men in a limited field of practice. The hospital associations are requesting assistance in solving this problem of adequate anesthesia coverage for the smaller institutions. They have also suggested a liaison committee with the American Society of Anesthesiologists and the American Hospital Association in order to clarify the relationship of the specialty with the hospital administration, which we of this group must encourage.

In reviewing the recent survey of the American Society of Anesthesiologists it is noted that the part-time anesthesiologist, who is the general practitioner, is administering a large percentage of anesthesia throughout the United States. This is particularly true in the rural and sparsely populated areas that have benefited under the Hill-Burton act. In many instances he is placed in this position by necessity rather than desire and because of this has requested educational assistance. This physician with a small amount of academic instruction is a safer administrator of anesthetics than is the technician

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Chairman's address, read before the Section on Anesthesiology at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 10, 1955.

[1] Need for Anesthesiologists, editorial, J. A. M. A. **145**:906 (March 24) 1951.

[2] Vollan, D. D.: (*a*) Scope and Extent of Postgraduate Medical Education in the United States, J. A. M. A. **157**:703-708 (Feb. 26) 1955; (*b*) The Physician as a Lifelong Student, ibid. **157**:912-920 (March 12) 1955; (*c*) Objectives and Content of Postgraduate Medical Education, ibid. **157**:1119-1125 (March 26) 1955; (*d*) Educational Methods in Postgraduate Teaching, ibid. **157**:1302-1309 (April 9) 1955; (*e*) Time and Place Arrangements of Postgraduate Courses for Practicing Physicians, ibid. **157**:1492-1498 (April 23) 1955; (*f*) Sponsorship and Administration of Postgraduate Medical Education, ibid. **158**:39-43 (May 7) 1955; (*g*) Financing Postgraduate Medical Education, ibid. **158**:184-187 (May 21) 1955; (*h*) Future of Postgraduate Medical Education, ibid. **158**:395-399 (June 4) 1955.

[3] Approved Internships and Residencies in the United States, J. A. M. A. **156**:321 (Sept. 25) 1954.

who may be a perfectionist in the clinical procedure but who is lost under an uninformed doctor's authority when the unusual occurs.

The need for better patient care as voiced by the hospital administrators and the earnest desire for more knowledge by the general practitioner have been heard by organized medicine and the American Society of Anesthesiologists. The responsibility and obligation to offer training programs for part-time anesthesiologists in order to improve the anesthesia available to the public has been cheerfully accepted by the trained anesthesiologist. Several flexible programs have been made available to all desiring them in all parts of the country. The refresher courses with a variety of subjects and a number of instructors have been sponsored by many local hospitals and county, regional, and state organizations. One of the largest programs is that sponsored by the Committee on Medical Schools and Postgraduate Education of the American Society of Anesthesiologists. This refresher course program has been enthusiastically received by those attending, which is shown by its rapid and steady growth. It is but one of several programs offered as regional-sponsored courses, which cover from 3 to 14 days. Primarily these are intended to attract physicians practicing anesthesiology full time, those in residency training, and those interested in research. Because of these factors and the travel time necessary, this portion of the educational program does not appeal to the part-time physician anesthesiologist.

CURRENT ANESTHESIOLOGY PROGRAMS

Postgraduate courses in the various phases of anesthesiology, such as inhalation anesthesia, regional anesthesia, and replacement therapy, have been offered for several years. These are concentrated courses in which the individual sessions follow one another, day after day, in such a way that the physician attends the course from the beginning to the end as a full-time student. This type does not require the physician to leave his practice for a long period of time, and in many instances it is possible to attend during a vacation period. Usually the entrance fee is minimal. An objection that has been offered to this type of training is the limited number of instructors involved in each course. Vollan in his report describes this part-time specialist, one who does general practice with particular attention to a specialty, as probably the largest consumer of special postgraduate courses limited to a narrow field of medicine, and it appears to him that increased training stimulates a desire for further postgraduate work rather than reducing it.[2b]

In order to satisfy further the educational needs of the physician who wishes to do a better job for his patient, a more flexible program has been made available. During the early part of 1955, a committee under the direction of Dr. Oral B. Crawford requested each state society of anesthesiology to form a committee to assist in the development of this phase of postgraduate education for the part-time anesthesiologist.[4] As soon as this was accomplished and each committee was instructed in the responsibility for the organization and presentation of this program, questionnaires were sent to the secretary of each county medical society and to each hospital administrator. From these returned questionnaires, the names and addresses of approximately 5,000 part-time anesthesiologists have been obtained. Not one of these is of a nationally organized group. Each of these part-time anesthesiologists was sent a questionnaire to ascertain his interest in obtaining postgraduate training in anesthesia. If he is interested in such a program, a further attempt will be made to determine the techniques that he employs, the type of training that would interest him, the time he will have available, and the drugs and techniques in which he desires more knowledge and skill. From questionnaires sent to teaching institutions and chairmen of departments of anesthesiology, a list of locations of postgraduate courses available to general practitioners has been compiled. To this list of almost 100 available locations, a brief description of the course was added, including the type of training, duration of the course, time it is offered each year, fee, and for whom it is designed. This list has been made available not only to these 5,000 physicians but to all general practitioners who attended their annual meeting in Los Angeles, March, 1955, and it will also be published.

In the development of this phase of training many of the objections previously found are avoided. The number of institutions willing to participate is increasing and can be found in practically every area of the United States. Anesthesiologists are anxious to make the clinical and didactic material available to student physicians at times convenient for them to leave their patients and to assist them in meeting the postgraduate training qualifications set up by the American Academy of General Practice, which requires its members to show evidence of 50 hours of formal training every three years in order to retain membership in the organization. The College of General Practice of Canada has recently been organized, and it requires 50 hours of formal graduate work every two years. The trained anesthesiologist wishes to do his part for both of these organizations to keep their membership up-to-date at all times and with as small a financial outlay as possible. Many institutions are cooperating without any tuition unless it is necessary for administrative reasons.

In the formation of these individualized programs, the special needs of each physician will be determined by close supervision of this clinical work. He will learn by doing, which places the burden upon the student. During this association the fundamental techniques and concepts will be instilled in him to think as an anesthesiologist and to find his place as a consultant in this physician-patient relationship. Anesthesiology has been made deceptively easy and, therefore, potentially dangerous in the hands of the inexperienced. The general practitioner in regular hospital work can and must do better than perpetuate outmoded methods of the past.[5]

169 E. Flagler St. (32).

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[4] Crawford, O. B.: Personal communication to the author.

[5] Gillies, J.: Advances in Anaesthesia, Practitioner 167:418 (Oct.) 1951.

USE OF PHENACEMIDE IN EPILEPSY, WITH ANALYSIS OF FATAL REACTIONS AND CASE REPORT

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Phenaçemide (Phenurone) is of proved value in psychomotor epilepsy. It is capable of relieving patients resistant to other antiepileptics, although its therapeutic effectiveness must be balanced against its toxic effects. Phenobarbital and diphenylhydantoin (Dilantin) are relatively safe drugs in the treatment of epilepsy; however, other anticonvulsant drugs, such as 3-methyl-5,5-phenylethylhydantoin (Mesantoin), trimethadione (Tridione), paramethadione (Paradione), and phenacemide, may produce moderately severe, but reversible, side-reactions and, in some patients, dangerous effects. Newer anticonvulsants such as primidone (Mysoline), metharbital (Gemonil) and N-methyl-α-phenylsuccinimide (Milontin) require further clinical study before their value in relation to other antiepileptics can be assessed. Milontin, for example, has been shown to cause transient renal damage. The problem of various hypersensitivity reactions as related to these drugs is now being brought into sharp focus because of such reactions.

Phenacemide is the only one of these drugs known to have caused fatal toxic hepatitis. Death from acute hepatitis due to Mesantoin had been reported in one patient, but subsequent investigation apparently absolved from blame the use of this drug as the cause of death. It is the purpose of this papér to analyze the eight reports of deaths associated with phenacemide therapy, to present one of these case reports, and to discuss briefly the pharmacology of, indications for, and precautions in the use of the agent, with the hope that the clinician may become more aware of untoward reactions from this agent and associated agents.

PHARMACOLOGY

Chemically phenacemide is phenacetylcarbamide or phenacetylurea. It is closely related in structure to diphenylhydantoin and to Mesantoin; if the hydantoin nucleus is opened between the carbon 5 and the adjacent nitrogen, a straight-chain compound, the corresponding acetylurea, is formed (fig. 1). Phenacemide contains the phenyl radical that seems to be one of the important substituents in the anticonvulsant activity of both the barbituric acid derivatives (phenobarbital and mephobarbital) and the hydantoin derivatives (diphenylhydantoin and Mesantoin). It is noteworthy that the phenyl radical is not present in the oxazolidine derivatives (trimethadione and paramethadione), drugs particularly effective in petit mal epilepsy.

Phenacemide was synthesized by Spielman and coworkers in 1948, examined for anticonvulsant activity by Everett and Swinyard, and first reported clinically by Gibbs and associates in 1949, who found it particularly effective in patients with psychomotor seizures. Subsequently, a large number of publications called attention not only to the unique value of phenacemide in psychomotor epilepsy but also to the considerable hazard involved in its use. An extensive review of data is that of Tyler and King, who analyzed the major side-effects. Phenacemide has a very low toxicity when given to experimental animals, and it effectively raises the threshold for, or completely suppresses, both electroshock and pentylenetetrazol (Metrazol) convulsions. Experimental evidence indicates that the liver plays a part in the destruction of phenacemide. Dogs given large doses for 18 months appeared to be healthy and had normal values for blood and urine analyses and kidney function tests. Liver function tests remained normal, or showed only slight impairment in some tests. Repeated bone marrow smears from the dogs showed normal marrow elements. It is claimed that in animals large areas of liver must be damaged or resected before any damaging effects from use of the drug are noted. In comparative tests phenacemide has been considered equal or superior to available anticonvulsants and has been found superior to all other drugs tested against psychomotor-type seizures produced in animals.

INDICATIONS AND PRECAUTIONS FOR USE

Because of the possibility of severe hypersensitivity reactions (to be outlined later) phenacemide should be administered only after other accepted anticonvulsants have been tried and found ineffective in controlling the seizures. Since phenobarbital and diphenylhydantoin are relatively safe and effective anticonvulsants, these drugs should be given an adequate trial in the majority of new cases. When it becomes necessary to use drugs such as Mesantoin, trimethadione, and phenacemide, the initial dose should be small. A carefully taken history of allergy, skin reactions, bleeding tendencies, and irregularities of the gastrointestinal tract and renal systems must be obtained. The intelligence, cooperation, geographical accessibility, and reliability of the patient should be determined. The patient should be informed of the risks and symptoms of side-effects and of the urgency of immediate reports to the physician when symptoms do occur. Before treatment is started, a urinalysis, blood cell count, platelet estimation, and hematocrit determination should be made. In addition, a urobilinogen test is necessary when phenacemide is to be used. These examinations should be repeated at two week intervals during the first year and once a month thereafter. Such precautions will prevent most fatal reactions. If the cost and inconvenience of these procedures make them impractical, the drugs should not be used. Sudden withdrawal of effective medication, especially diphenylhydantoin or phenobarbital, is dangerous because a plethora of seizures may follow. Use of these drugs do not cause mental

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This paper has been reviewed by the Veterans Administration and is published with the approval of the Chief Medical Director. The statements and conclusions of the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

deterioration if prescribed in suitable doses, but, with certain ones, a constant vigil must be maintained for evidence of toxicity. Occasionally, severe mental aberrations make it advisable to stop use of the drugs. Toxic reactions may occur very early or very late. Unremitting caution must be exercised in using anticonvulsants, and a record must be kept of persons receiving them. A note should be made of the date the patient is scheduled to have follow-up laboratory examinations. If the appointment is not kept, a registered letter should be sent repeating the warnings already given the patient and urging prompt attention. Including the following case, there have been eight deaths recorded that have been attributed to the use of phenacemide. These cases will be analyzed later.

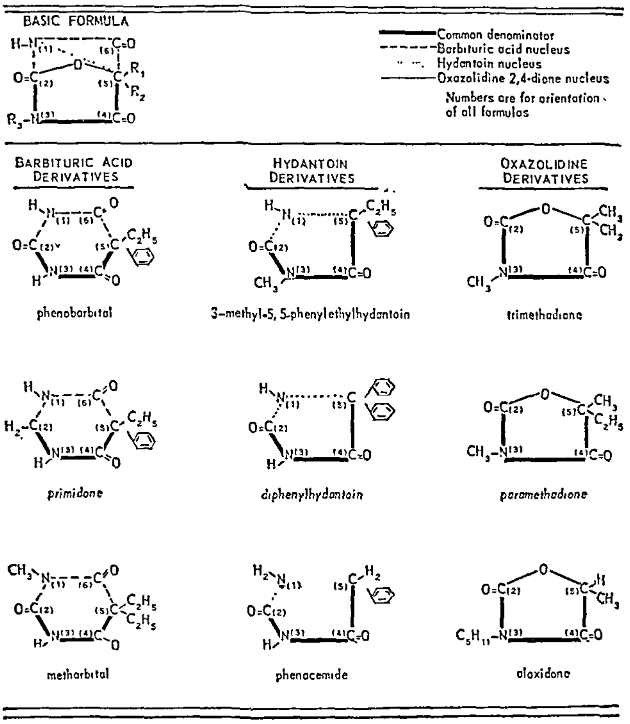

Fig. 1.—Chemical structure of commonly used anticonvulsant drugs (after Goodman, L. S., and Gilman, A.: The Pharmacological Basis of Therapeutics, ed. 2, New York, the Macmillan Company, 1955, pp. 180-182).

REPORT OF A CASE

A 35-year-old male veteran was admitted to the Veterans Administration Hospital, Fort Douglas, Utah, on Aug. 20, 1953, for treatment of epilepsy. He had been taking diphenylhydantoin and phenobarbital since 1946, when a diagnosis of grand mal epilepsy was first made. He exhibited mental deterioration, and his seizures had become resistant to the common forms of anticonvulsant medication, including trimethadione. His physical condition had always been good. There was no history of jaundice, cirrhosis of the liver, or disease of the hematopoietic system, nor was there any history of dermatitis or illness compatible with a drug hypersensitivity reaction.

Although he always enjoyed excellent physical health and had no interim infections, he continued to have grand mal and psychomotor seizures. He was increasingly aware of memory loss, and at the time of his admission to our hospital his behavior was described as psychotic. He had been taking 0.1 gm. of diphenylhydantoin and 0.032 gm. of phenobarbital three times daily. No other medication had been given for a period of six months prior to hospitalization, and he only received anticonvulsant drugs during his hospitalization. Trimethadione had been given several times in the past without evidence of toxicity; its use was begun again Sept. 18, 1953, 0.3 gm. twice daily.

Phenacemide was first given on Dec. 5, 1953, 0.5 gm. twice daily. His convulsive episodes became fewer, but his behavior remained schizoid. Under guardianship, he was granted a leave of absence from Dec. 22, 1953, to Jan. 4, 1954. There were no changes in liver function tests, including urine urobilinogen, and blood cell counts and urinalyses stayed normal.

He returned from leave in good condition. No changes in his behavior were noted until Jan. 12, 1954, when he appeared ataxic and more confused after a grand mal seizure. He became noticeably jaundiced on Jan. 16, 1954, and therapy with all anticonvulsant drugs was discontinued. He had received therapy with these drugs in the following quantities: diphenylhydantoin, 0.3 gm. daily for nearly eight years; phenacemide, 42 gm. (total dosage) over a period of 42 days; and trimethadione, 72 gm. (total dosage) over a period of 109 days. He became rapidly comatose, the icteric index rose to 100 units, and the serum bilirubin level rose to 25 mg. per 100 cc. on Jan. 18, 1954. Blood glucose, blood urea nitrogen, and carbon dioxide combining power of the blood were normal on that date, as were the serum cholinesterase, serum cholesterol, and serum alkaline phosphatase determinations. Prothrombin activity was recorded as less than 10% of normal. The cephalin flocculation test was 3+; the thymol turbidity test was normal. A qualitative urine urobilinogen test was strongly positive. Plasma electrolytes, including sodium, potassium, and chlorides, were normal. Bleeding time, coagulation time, clot retraction, and number of platelets were normal. Urinalysis was negative. The hematocrit determination was normal. Leukocyte count was 12,000 per cubic millimeter, with no other abnormal findings on the smear. A spinal fluid examination was negative; fluid dynamics were normal. The chest roentgenogram (portable) revealed no abnormal findings. The electrocardiogram showed no unusual features except sinus tachycardia. The patient did not respond to therapy. By Jan. 19, 1954, he was in deep hepatic coma and fetor hepaticus was easily detected. Despite vigorous supportive measures, he died on Jan. 20, 1954, without further convulsive seizures and without showing hemorrhagic tendencies.

Autopsy Findings.—Postmortem examination revealed generalized discoloration of tissues due to hyperbilirubinemia and changes in the liver characteristic of acute yellow atrophy. The liver was greatly diminished in size, weighing only 800 gm. The capsule was smooth and glistening, and in some areas the lobular pattern of the liver could be identified through the capsule. The parenchyma was moderately flabby and, when laid on the table, caused the liver to assume a pancake-like shape. On sectioning, the parenchyma bulged beyond the capsule, and it was mottled with red pinpoint areas and streaks of yellow. The hepatic lobules were scarcely visible. Microscopically, the picture was one of profound disintegration and necrosis, the structure of the hepatic cells being completely lost and replaced by granular debris (fig. 2). Only a thin rim of intact hepatic cord cells surrounded the periportal triads. The biliary radicles and vessels did not appear

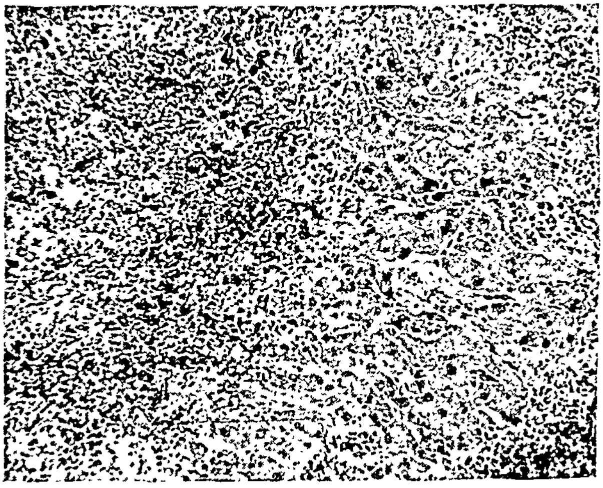

Fig. 2.—Photomicrograph showing profound disintegration and necrosis of liver cells in acute yellow atrophy (× 100).

abnormal. There were no changes of note involving the kidney, heart and vessels, pancreas, brain and spinal cord, gastrointestinal tract, lungs, lymph nodes, bone marrow, adrenal glands, spleen, or other organs.

DEATHS ASSOCIATED WITH PHENACEMIDE THERAPY

Levy and others[1] have suggested the following criteria to establish the basic role of drug toxicity in any given case: 1. The patient must have been in good health prior to the administration of the agent. 2. The causative agent must have been given over a sufficient period, uncomplicated by other medicaments. 3. The illness in question must be unrelated to any other obvious etiological process. 4. The drug must be shown to have caused similar toxic effects in animals or in human subjects. 5. Pathological findings must confirm the involvement of the systems affected in the clinical picture. All these criteria are fulfilled in the eight fatalities attributed to phenacemide therapy (see table), with minor exceptions that will be discussed. It is difficult to exclude the possibility of viral hepatitis, but in each case the relation of the phenacemide treatment and the hepatitis can be regarded as more than coincidental. Analysis of these deaths in association with a new drug is of the utmost importance; the dangerous toxic effects of trimethadione, paramethadione, Mesantoin, and phenacemide have been reviewed elsewhere. Drug-induced hypoplastic anemias are common to all of them, but Mesantoin offers the highest risk in this connection. Several cases of the nephrotic syndrome resulting from trimethadione have been reported. At least 40 fatalities from the use of these drugs have now been reported during the past seven years. Osgood[2] concludes that phenacemide is an agent known to produce hypoplastic syndromes of the drug hypersensitivity reaction type. The mechanism *of action is still uncertain. The two cases of aplastic* anemia attributed to phenacemide have been described in detail by Forster and Frankel[3] and by Simpson and others.[4] In these cases it appears that phenacemide was the anticonvulsant causing the deaths. Mesantoin therapy had been used in both patients but had been discontinued 60 and 175 days, respectively, prior to onset of toxic reactions in these two cases (see table, cases 1 and 2).

Analysis of Deaths Attributed to Phenacemide Therapy

			Therapy			
			Phenacemide			
Case No.	Observer	Year Reported	Days	Total Dose, Gm.	Other Anticonvulsants	Pathological Findings
1	Forster and Frankel[3]	1949	60	90	Diphenylhydantoin, 14 mo.; Mesantoin, 6 mo. (therapy discontinued 60 days before death)	Aplastic anemia
2	Simpson and others[4]	1950	180	425	Diphenylhydantoin, 2 yr.; Mesantoin therapy discontinued 175 days before symptoms	Aplastic anemia
3	Levy and others[1]	1950	80	120	Diphenylhydantoin, 9 yr.	Hepatorenal syndrome
4	Levy and others[1]	1950	44	51	Mesantoin and trimethadione, 9 mo.; diphenylhydantoin for years	Acute yellow atrophy of liver, with significant renal findings
5	Davidson and Lennox[8]	1950	45	50	Diphenylhydantoin, many years	Acute, severe parenchymal liver damage, superimposed on older portal cirrhosis, mild
6	Liversedge and others[9]	1952	25 †	72	Trimethadione therapy discontinued 12 mo. prior because of rash and leukopenia	Acute yellow atrophy of liver
7	Field and Just[10]	1954	210	669	Diphenylhydantoin, 21 mo. (total dose, 252 gm.)	Massive necrosis of liver parenchyma
8	Craddock *	1955	42	42	Trimethadione, 110 days (total dose 72 gm.); diphenylhydantoin, 7 yr.	Acute yellow atrophy of liver

* This report.

† Rash appeared after 23 days, and therapy was restarted two weeks later for 2 days.

It is significant that of the more widely used anticonvulsant drugs, phenacemide is the only one proved to have caused severe toxic effects on the normal liver. Therefore, the clinician must constantly look for evidence of impending liver damage while his patient is undergoing therapy with the drug. Before any deaths were reported from toxic hepatitis, Lloyd-Smith[5] described a case of acute hepatitis, with jaundice developing after 70 gm. of phenacemide had been given for two months. The serum bilirubin level was 4.4 mg. per 100 cc.; the alkaline phosphatase level was 13 units per 100 cc. (Bodansky); the cephalin flocculation was 4+; and the thymol turbidity was reported as 7 units. One week after cessation of therapy with the drug, the jaundice disappeared and liver function tests had returned to normal. Livingston and Kajdi[6] alluded to the occurrence of nonfatal hepatitis in one out of 104 patients receiving the drug, and Carter and others[7] described two cases of acute hepatitis with recovery among 63 patients taking phenacemide. These cases proved to be an indication of the ability of this agent to produce more serious toxic effects on the liver, and within a few months the first three cases of fatalities due to phenacemide-induced hepatitis were reported. In one of these patients there were also changes representing the resolving phase of lower nephron nephrosis[1] (see table, case 3). The icteric index had risen to 42 units; albuminuria was present, and the blood urea nitrogen level was 227 mg. per 100 cc. The prothrombin

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1. Levy, R. W.; Simons, D. J., and Aronson, S. M.: Fatal Hepatorenal Syndrome Associated with Phenurone Therapy, New England J. Med. **242**: 933-936 (June 15) 1950.
2. Osgood, E. E.: Drug Induced Hypoplastic Anemias and Related Syndromes, Ann. Int. Med. **39**: 1173-1188 (Dec.) 1953.
3. Forster, F. M., and Frankel, K.: Fatal Aplastic Anemia During Anti-Convulsant Therapy: Report of a Case During Phenurone Therapy and Following Mesantoin Therapy, Dis. Nerv. System **10**: 108-111 (April) 1949.
4. Simpson, T. W.; Wilson, E. B., Jr., and Zimmerman, S. L.: Fatal Aplastic Anemia Occurring During Anticonvulsant Therapy: Probable Idiosyncrasy to Phenurone, Ann. Int. Med. **32**: 1224-1228 (June) 1950.
5. Lloyd-Smith, D. L.: Phenurone and Hepatitis, Canad. M. A. J. **62**: 493-495 (May) 1950.
6. Livingston, S., and Kajdi, L.: The Use of Phenurone in the Treatment of Epilepsy, J. Pediat. **36**: 159-164 (Feb.) 1950.
7. Carter, S.; Sciarra, D., and Merritt, H. H.: Phenylacetylurea in Treatment of Convulsive Seizures, Dis. Nerv. System **11**: 139-141 (May) 1950.

activity was 40% of normal, and the cephalin flocculation was 3+. The patient remained comatose for one week and became anuric. The autopsy revealed a liver of normal size and grossly normal appearance; however, microscopic examination revealed injured hepatic cells displaying various degrees of change, consisting essentially of a granular cytoplasm with numerous, indistinct vacuoles. The parenchyma of the kidneys appeared somewhat swollen and edematous. Microscopically, the glomeruli appeared normal, but many of the distal convoluted tubules were dilated and some were filled with pink-staining casts.

Levy and others[1] reviewed the clinical course and autopsy findings in another patient (see table, case 4) who died of acute yellow atrophy of the liver. This patient was receiving Mesantoin, trimethadione, and diphenylhydantoin. He died in coma 51 days after phenacemide was included in his therapy; he had been given therapy with Mesantoin and trimethadione for nine months and had received diphenylhydantoin for many years. The liver appeared shrunken and was soft and friable. Microscopic examination of the liver revealed extensive destruction of the basic lobular architecture and severe necrosis of most of the hepatic cord cells. In addition, gross inspection of the kidneys showed them to be swollen, but the capsule stripped with ease. Microscopic examination revealed ischemic glomeruli, with thickening of the capillary walls, and there was marked degeneration of both straight and convoluted tubules.

Davidson and Lennox[8] described a case of severe acute parenchymal damage of the liver (see table, case 5). Therapy with diphenylhydantoin had failed to give any relief from the seizures; no other medication was given. Phenacemide was administered for only 45 days (total dose 50 gm.), but after three weeks with phenacemide therapy the patient complained of lethargy, diarrhea, and anorexia. Symptoms were first attributed to an epidemic gastrointestinal disturbance then prevalent in the community. Jaundice was noted three weeks later; the patient died shortly thereafter from hepatic coma. Autopsy revealed acute, severe parenchymal damage to the liver, superimposed on an older portal cirrhosis of mild to moderate degree. A case of acute yellow atrophy of the liver following phenacemide therapy was next reported by Liversedge and others.[9] It is very significant to note that the patient developed a severe skin rash when trimethadione was given a year previously; there had been no other sign of toxic effect from trimethadione, but therapy with the drug was discontinued. Therapy with phenacemide was likewise discontinued when a rash developed after 23 days of treatment; it was restarted two weeks later on the insistence of the mother of the patient, since seizures had again become severe. Two days after the readministration of phenacemide therapy, the child became very listless and his eyes were noticeably puffy. Therapy with the drug was again stopped, but jaundice and hepatic coma ensued and the patient died. The most striking laboratory finding was the extremely low level of prothrombin activity; the authors urge that prothrombin activity be followed when patients are treated with phenacemide therapy. Autopsy in this case revealed liver lesions characteristic of acute yellow atrophy; the kidneys were normal. Field and Justi[10] have reported another case of fatal hepatitis after phenacemide therapy for epilepsy (see table, case 7). The interval between the initiation of phenacemide treatment and death in this case was seven months—much longer than that of the other cases (25 to 86 days). Postmortem findings included evidence of massive destruction of the liver parenchyma, and the only viable tissue was a collection of hepatic cell cords.

I have had the opportunity to study the case of a 42-year-old woman admitted to the Letterman Army Hospital, San Francisco, on April 20, 1954.[11] She had received phenacemide therapy for approximately 200 days; the total dose of the drug was about 100 gm. She was critically ill and had recurring chills, jaundice, and a temperature of 104 F (40 C). She was also mentally confused. The liver was moderately enlarged, and there was marked ascites. Pertinent laboratory findings were as follows: serum bilirubin level was 4.2 mg. per 100 cc.; sulfobromophthalein retention was 30% in 15 minutes; blood urea nitrogen level was 18 mg. per 100 cc.; and serum protein levels were normal. Repeated paracenteses were performed weekly, and as much as 8,000 cc. of straw-colored fluid with the characteristics of a transudate were removed on one occasion. Biopsy of the liver revealed "focal necrosis and fibrosis with slight periportal inflammation." Because of impending hepatic coma, 400 mg. of cortisone was given daily, and a profuse diuresis occurred after two weeks of hormonal therapy; the ascites disappeared completely. Therapy with cortisone was discontinued after three weeks, during which a total of 8.5 gm. had been given. A second biopsy of the liver on June 11, 1954, revealed "focal postnecrotic scarring, with a definite increase in fibrous tissue, as compared to the previous liver biopsy; there is evidence of regeneration of bile ducts and liver cells." The patient has been maintained on therapy with diphenylhydantoin and phenobarbital since discharge from the hospital on June 16, 1954, and she remains well. This case, as well as other cases recently reported in the literature, illustrates the value of cortisone therapy in patients with impending hepatic coma.

COMMENT

Since hepatic coma appeared to be the terminal feature in six of the deaths attributed to phenacemide therapy, it is appropriate to review certain clinical features of this event. This type of coma is first characterized by lethargy or abnormal excitement progressing to unconsciousness, often attended by convulsions, in the immediate period before death. The appearance of the disordered mental state, the convulsive episodes, and the coma coincide with what appears to be serious metabolic decompensation. Fever, fetor hepaticus, Kussmaul-type respiration, dryness of mucous membranes, muscular twitchings, oliguria, and anuria are some of the findings suggestive of gross physiological breakdown; however, review of the findings obtained from routine blood and

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8. Davidson, D. T., Jr., and Lennox, W. G.: Phenacetylurea—Phenurone—in Epilepsy, Dis. Nerv. System **11**: 167-173 (June) 1950.
9. Liversedge, L. A.; Yates, P. O., and Lempert, H.: Acute Yellow Atrophy of the Liver Following Treatment with Phenylacetyl-Urea, Lancet **1**: 242-43 (Feb. 2) 1952.
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hepatic tests serves to emphasize their lack of sensitivity for predicting or measuring hepatic damage.

The basic pathology of this condition is varied, as has been shown by the different microscopic findings in the 11 cases reviewed by Carfagno and others.[12] The maintenance of a normal concentration of blood sugar and blood urea nitrogen in most of these cases does not detract from the significance of reduced levels in the individual patient with advanced parenchymal failure. The point can be made, however, that the metabolic derangements in hepatic coma do not necessarily depend on or coincide with depression of these levels. The appearance of jaundice marks the stage of serious parenchymal failure. The positive cephalin flocculation test in most cases contrasts with the normal thymol turbidity and the alkaline phosphatase tests. The blood electrolyte studies reveal little indication of the severity of hepatic parenchymal failure. Other abnormalities that may appear include elevated or increased blood levels of ammonia, ketones, and pyruvate; decreased levels of cholesterol and cholesterol esters; and failure of various enzyme systems. The electroencephalogram may show definite slowing of the brain waves and a decrease in their amplitude. Neutral fat and fatty acid levels are not consistently changed.

SUMMARY AND CONCLUSIONS

It is significant that, of the commonly used anticonvulsant drugs, phenacemide (Phenurone) is the only one proved to cause severe toxic effects on the normal human liver. One of the most striking findings in the cases discussed in this paper appears to be the very low level of plasma prothrombin activity, often associated with relatively normal values for other tests of liver function. Hepatic coma appeared as the terminal mechanism in six of these cases. All the newer anticonvulsant drugs have produced dangerous, often fatal, reactions. Evidence has been presented that periodic blood cell counts and liver function studies may be of little aid in reducing the morbidity or mortality caused by therapy with these drugs. It is considered that the therapy of first choice in grand mal epilepsy is diphenylhydantoin (Dilantin) alone, or with phenobarbital, for a reasonable period of time (three to six months). Therapy with the other drugs should be given only after careful consideration, with the knowledge that occasional fatalities may be anticipated. The question as to whether the toxicity of a drug outweighs its therapeutic advantages must be answered before employing it. A drug obviously should be used with caution in any individual with a history of previous liver or renal disease. It is best to limit the use of phenacemide therapy to patients with psychomotor epilepsy. Better and safer agents for treatment of grand mal epilepsy are available. In psychomotor epilepsy, either diphenylhydantoin or primidone (Mysoline) are drugs of first choice; phenobarbital is of little or no value. If the psychomotor seizures are uncontrolled, it is best to try 3-methyl-5,5-phenylethylhydantoin (Mesantoin) before a final resort to phenacemide therapy.

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THE PHYSICIAN AND THE CHAMBER OF COMMERCE

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American physicians, theoretically in the forefront as proponents of the free enterprise system, are actually denying their support to that system. Too many of them are withholding physical and financial support from their local chambers of commerce, potentially the strongest single force in existence to perpetuate and refine our free enterprise system and to improve the general welfare of our communities. Strong words? Yes, but true. Although some few communities in this country have as high as 90% of their physicians belonging to the local chamber of commerce, others have as low as 10%, and the general average for the entire nation is undoubtedly considerably below 50%.

The situation is a great professional paradox. The physicians have by far the highest average educational level in any community—they have had at least eight years of education beyond high school and some even more. They are above the average in intelligence, or they would not have survived the high selectivity of the physician's training program. They are well above the average income level, if only for the statistical reason that people with higher educations have 77% of the country's $5,000 a year incomes and 82% of the incomes that exceed $10,000. And finally, they are accorded a prestige unique in American life, a prestige that is inescapable, immeasurable, and occasionally incomprehensible. These educational and financial and general social advantages set physicians apart as a great potential influence in chamber of commerce work. It is an influence that is sorely needed and wanted. If this privileged class does not assume the responsibilities of American ideology and of community welfare, who in the community should?

RESPONSIBILITY AS CITIZENS

The very prestige of the physician has undoubtedly in the past acted as a deterrent to his participation in chamber of commerce work. He has often practiced his divine healing art on a pink cloud, far off by himself, uninterrupted and unaffected by the microcosmic and the mundane. In recent years he, along with other professional people, has fallen out of his cloud with a perceptible thud. He has had very practical experience with the world around him in such matters as socialized medicine, doctor's draft, veterans' medical problems, malpractice suits, and fee and salary problems. He has seen all types of medical legislation proposed on a national level, vital medical issues weighed on a state level, and health problems thoroughly explored on a local level.

Perhaps because of this probing and intrusiveness, Mr. Average Man no longer idly watches his physician

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President, Greater Hazleton Chamber of Commerce.

floating on his pink cloud. He expects him to be a citizen as well as a healer. Contrariwise, the physician has perhaps been rudely awakened to the fact that this is so. As Theodore Roosevelt observed, "Every man is, first, a citizen of some community." Our citizenship antedated our professional work and will probably postdate it. As citizens we are, *ipso facto,* deeply interested in our communities, and that is where the chamber of commerce comes in.

OBJECTIVES

A chamber of commerce is an organization that coordinates and integrates the talents and resources of businessmen and professional men trying to make their community a better place in which to live and earn a living. Its programs are dedicated to the improvement of living standards and improvement of the economic condition of all residents, not a favored few. Its entire function is the initiation and support of projects in the public interest. In a real sense, the chamber epitomizes the free enterprise system and the American idea of progress and growth. Its genius lies in organizing and directing the energies of those men in every community who believe that their city has a place in the sun and are determined to find that place. Lord Byron said, "I live not in myself, but become a portion of that around me." The reasons why every American physician should be a portion of his surroundings, and particularly his chamber of commerce, appear self-evident; and yet more than 50% of us are not.

My own interest in our local chamber of commerce began slowly, prodded primarily by the fact that we live in an economically distressed area and that the local chamber, by its own efforts, and by its efforts alone, was bringing new industry into our area. That seemed rather vital to my own livelihood and that of the other professional people in our community. Just how vital? The Chamber of Commerce of the United States, in a most scientific and meticulously accurate survey of nine sample counties throughout the nation, discovered some startling figures concerning the effect of new industrial jobs on a community. They found that just 100 new factory workers meant the following things to their community: 296 more people, 112 more households, 51 more school children, $590,000 more personal income per year, $270,000 more bank deposits, 107 more passenger cars registered, 174 more workers employed, 4 more retail establishments, and $360,000 more retail sales per year.

Stimulated by this knowledge, exactly 100% of our 57 physicians joined the chamber of commerce and so did 75% of our lawyers and 70% of our dentists. After most of us were in, we wondered why physicians everywhere were not. One of us discussed this question on the programs of the 1954 and 1955 annual meetings of the Chamber of Commerce of the United States. At these meetings chamber of commerce executives from throughout the country told us of their particular problems with the physicians in their own areas.

OBJECTIONS AND ANSWERS

The following section is a compilation, as accurately as could be digested, of the objections that physicians in different sections of the country had to membership in their chamber of commerce and just how those of us who are already members would answer these objections:

1. Objection: Costs too much.

Answer: We have also heard a great deal of griping about medical society dues. Such an objection in either case appears passing strange, in view of the fact that each member of the United Automobile Workers pays his union $90 a year in dues and assessments, and other union members pay similar amounts. Comparably, chamber of commerce dues appear inordinately low. The objection itself is not peculiar to the medical profession. It is heard everywhere. The dues vary widely in different localities but usually range between $20 and $50 a year for an individual. That is mighty cheap insurance for the future of your community and, incidentally, yourself. Despite some confusion on the issue, chamber of commerce dues have several times been ruled income-tax deductible by the Internal Revenue Department on the basis that the money is being used for the furtherance of the physician's business. That ruling itself speaks volumes.

2. Objection: It is not professional or ethical.

Answer: Get off that pink cloud. Is it professional to be an isolated clique in the community? Is it ethical to forget that one is a citizen as well as a physician? Chamber membership is not only professional, not only ethical, but distinctly recommended by the American Medical Association through its Public Relations Department.

3. Objection: Too busy.

Answer: All successful men are too busy, but does that mean they should deny their talents to their community? To stoop to a cliché, if you want something done, ask a busy man. If you don't honestly have the time to participate actively, do not withhold your moral and financial support. Your chamber of commerce will handle your share of community betterment and civic duty while you are not available.

4. Objection: The chamber accepts members who are members of the "fringe professions" or even out-and-out quacks.

Answer: Perhaps it does. The chamber will accept anyone who is interested in the betterment of his community. Would it not be considered a sad commentary if the so-called undesirables were interested and the physicians not? And is it better for the fringe professions to speak for the professional group on community problems or the physicians themselves?

5. Objection: Physicians make their contributions to their communities through clinics and charity services and should not be called upon to give more.

Answer: Free work for those unable to pay is our proud heritage and responsibility. Let us not cheapen our heritage by bargaining with it nor shirk our responsibility by underestimating it. As a group we do well enough to support civic affairs actively as well as passively.

6. Objection: Not a democratic organization—run by big business.

Answer: Not so. Chambers of commerce are run in a truly democratic manner. All of the members of a local chamber vote for and elect their board of directors, and the board in turn elects the officers. Local chambers, providing they are members of the national body, also vote for representatives who sit on the board of the Chamber of Commerce of the United States. Anyone really interested is warmly welcomed in chamber of commerce work.

7. Objection: Not a truly local organization—run by an all-powerful United States Chamber of Commerce.

Answer: Again not so. The local chamber is probably the most completely autonomous organization in the community. It carries out its own program in its own way and is answerable only to its own members and the community itself. True, it often calls upon the limitless storehouse of knowledge and experience in the state and national organizations and is sent valuable information by these organizations; but, in the final analysis, all decisions on local, state, or national issues rest with it alone.

8. Objection: Do not like the way it is run locally or the people who run it.

Answer: This answer is obvious. Suppose you do not like your city administration or your elected city officials? You get nowhere by picking up your marbles and going home. Just become a member and give the organization the benefit of your ideas. Critical or otherwise, your voice will always be welcomed.

9. Objection: Do not believe in its policies.

Answer: That is somewhat like saying you do not believe in motherhood or kindness to dumb animals. Simmered down, its policies are basically those of community betterment, the free enterprise system, and the Constitution of the United States.

10. Objection: Do not believe in belonging to other than professional organizations.

Answer: All right, be an ostrich; but remember what has happened in veterans' organizations because of similar unconcern and how we have already succumbed to some of the powerful political lobbies of fringe professions. And much more basically, of course, we must again stress the point of civic responsibility.

11. Objection: Just a bunch of impractical do-gooders, like a Greek letter fraternity.

Answer: That question must be answered locally. It usually means that the work that the chamber has done and is doing is not sufficiently publicized. There is probably not a community in the country that has not been bettered in many ways by its chamber of commerce.

12. Objection: I never got any business, directly or indirectly, from the chamber of commerce.

Answer: This is not a "scratch-my-back-I-scratch-yours" organization. If you buy or sell goods or services in your city, the chamber of commerce is working in your behalf. You obviously make a living, or you would not be here. You must enjoy living in the community, or you would not stay here. No man ever succeeded in any business or profession in the middle of the Sahara Desert. The chamber of commerce is the irrigation system that makes your garden grow.

13. Objection: We can get along without the local chamber and its overhead.

Answer: We can actually get along without any one of the hundred and one typically American organizations where men of good heart voluntarily band together for the common good—but who would want to? This organization is the only one of its kind that is oriented and implemented for community progress. No citizen would admit that his city has reached the saturation point of progress. You probably have not even scratched the surface of possibilities for future growth and prosperity. Business and professional men need an organization for organizing, planning, and thinking. They need a spokesman for their plans. Your chamber of commerce offers just that. And certainly there is an overhead. Nothing can run on the clean air of the city or the good wishes of its inhabitants.

14. Objection: Do not want to be identified publicly with any particular social or ideological group.

Answer: As a group we have been accused at various times of being antiliberal, antilabor, anti-man-on-the-street, and even anti-local business. That is the cross that must be borne in the crusade for progress. Actually the chamber is not anti anything except apathy and indifference and any attempted negation of the American way. If that be ideological identification, then let us make the most of it!

15. Objection: It actually keeps new industry out of our area.

Answer: In economically distressed areas the chamber of commerce is frequently made the whipping boy for all local ills. It is somewhat like blaming Sir Alexander Fleming for a case of pneumonia because his penicillin has not cured it. Obviously, since the chamber is composed almost entirely of businessmen and professional men, its very lifeblood depends on the addition and expansion of new industry in the area.

16. Objection: It attracts too much new industry to our area; we are already overcrowded, strangers are moving in, there are housing problems, labor problems, and parking problems.

Answer: Is there any limit to progress, any ceiling to success? If there are problems connected with progress, solve the problems; do not stop the progress.

17. Objection: The board of directors does not represent the professional viewpoint and commits t organization and sometimes the city to polic
with professional ethics.

Answer: I wish all the answers were
is enough professional participation,
will be any question of variance from

18. Objection: I am too young to afford it (or too old to benefit from it).

Answer: Two variations of the same theme. If you are young and do not have a large income, you nevertheless probably have life insurance. Standing right next to life insurance in importance is community insurance. If the community does not prosper, neither will you. If you are old and cannot see much in the way of personal benefit, think of the older men who preceded you and made the community a better place for you to live.

19. Objection: It is an organization for big business, not the small businessman and individual.

Answer: Quite the contrary. It is just that small person who benefits most from the chamber of commerce. A big business usually has a paid staff to protect its interest, whereas a small business cannot afford similar services except through such an organization. The majority of members in any chamber of commerce are small businessmen or individuals cooperating to accomplish what they cannot accomplish alone. And who profits most from increased local prosperity and civic development—the large industrial plant owner who probably sells 99% of his product elsewhere, or you?

20. Objection: I just do not believe in things like this.

Answer: None.

CONCLUSIONS

There are the objections and the answers. In conclusion, there are three classes of residents in any community: those who live off it, those who live in it, and those who live for it. The first class are parasites, reaping where they do not sow. They are not applicable to this summary, and they beggar description. The second class lives in the community but has little or nothing to do with its activities. If enough of the population are in this group, there is community hari-kari. The third class of residents of a community—those who live for it—recognize their political, social, and economic duties as citizens by taking an attitude of live civic brotherhood. Such men meet on common ground, regardless of professional status, social status, physical possessions, religion, or politics. Let it not be said of the physicians in any community that they abhor this common ground.

225 Markle Bank Bldg.

INTERIM REPORT, PUBLIC HEALTH SERVICE TECHNICAL COMMITTEE ON POLIOMYELITIS VACCINE

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COMMITTEE OBJECTIVES

On May 23, 1955, the surgeon general of the Public Health Service appointed a Technical Committee on Poliomyelitis Vaccine to review production and testing data on lots of vaccine submitted by manufacturers and to make recommendations concerning the release of such vaccine. As a result of an earlier review,[1] it was evident that it would also be necessary for this committee to study the details of manufacturing and testing procedures and to recommend requirements for production that would assure uniformly safe and potent vaccine.

RELEASE OF VACCINE

The significance of a negative test for infective virus on a given lot of vaccine is greatly enhanced if the particular lot is one of a series in which tests for infective virus are negative. This principle was confirmed by observations in the poliomyelitis vaccine field trial. Accordingly, recommendations for release of vaccine by the committee have been influenced as much by the plant record for consistency of performance as by the negative results of tests on the individual lots considered. Consistency of performance, together with a negative test on a particular lot, provides the greatest measure of safety. Observations on field performance of the vaccine in the United States, Canada, and Denmark during 1955 have fully supported this concept.

INVESTIGATION OF VACCINE MANUFACTURING AND TESTING METHODS

The committee has been in operation for more than five months. During this time it has met repeatedly with manufacturers' technical representatives. With their cooperation the committee has investigated the important aspects of vaccine processing and testing. This report contains a summary account of the information obtained and the decisions reached. Although it is not possible to present here the voluminous data that have become available or to evaluate such information in detail, this summary may be useful in informing the medical profession and the public of the present state of the problems with which the committee has been concerned. Fuller technical accounts dealing with the separate subjects to which reference is made will be submitted for publication in *Public Health Reports* or other scientific journals.

EXPLANATION OF THE PROBLEM OF CONSISTENCY IN MANUFACTURE

The committee sought information bearing on the question of lack of consistency in production of vaccine by some manufacturers. Since the observed inconsistencies were not of the same order of magnitude in the case of all manufacturers—in fact, it could be said that the operation of the inactivation process was highly consistent in some laboratories—it was clear that the establishment of an equally consistent record of negative tests by all manufacturers would necessitate an analysis of differences in manufacturing details.

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[1] Technical Report on Salk Poliomyelitis Vaccine, U. S. Public Health Service, June, 1955.

In the case of those manufacturers whose process lacked the desired degree of consistency, it appeared that, in the early phase of inactivation, virus was being destroyed as rapidly and as uniformly as was expected. In some instances, however, there were traces of infectious virus that resisted treatment that theoretically was capable of inactivating much greater amounts of virus. This conclusion was evident from the results of the testing practices that were in effect before as well as after May 26, when the requirement for volume of sampling was changed. Moreover, such traces of active virus, in many instances, were not eliminated by the application of still further treatment. This was true for all three types of virus.

In considering reasons for failure of complete inactivation, it seemed that such failure could be due either to protection of virus from direct contact with formaldehyde or to the existence of virus particles that are inherently more resistant to formaldehyde. There is no evidence for the latter possibility. Rather, the facts support the concept that a physical barrier interfered with the contact required for chemical interaction between formaldehyde and the virus. The fact that failure of complete inactivation was not an industry-wide problem could also be interpreted to mean that details of manufacturing were at fault rather than the ineffectiveness of formaldehyde as a means for destroying virus infectivity in suitably performed routine vaccine manufacture.

In searching for the significant technical factors that might be operative, plant processes were reviewed and an examination was made of representative samples of virus-containing fluids prepared for the inactivation step by the different manufacturers. Although differences in details of processing were recognized in the review of plant procedures and certain conclusions could be reached therefrom, the significance of these differences became more apparent when studies were made of virus fluids prepared for inactivation by each of the manufacturers. The striking differences observed were in the degree of clarity of the different fluids and in the character of the sediments that were present in some. It was noted, also, that fluids that contained sediments failed to inactivate under conditions applied simultaneously and effectively to other fluids not having such sediments. This observation pointed strongly to a solid phase as the source of the physical barrier against complete interaction between virus and formaldehyde. Virus incorporated within a solid phase should not be expected to be inactivated in the same way as virus free in the fluid phase; in fact, it was for this reason that filtration was required from the beginning as a step in the procedure for vaccine manufacture. Unfortunately, the importance of uniform standards of filtration in large-scale production could not be fully appreciated until the difficulties resulting from departures from former production methods became known to the controlling agency.

In searching further, it was found that fluids that failed to be inactivated often had not been filtered just before addition of formaldehyde but had been filtered a number of months earlier. This made it difficult to decide, in some instances, whether the solid phase was formed on standing, whether it was due to material that passed through a defective filtration process, or whether it was due to both factors. It was evident, nevertheless, that such practices as would permit the existence of a solid phase could account for the occurrence of inconsistency of inactivation. It was not possible in most cases to evaluate the relative importance of inadequacy of filtration as compared with storage after filtration.

The idea that inadequacy of filtration, even without the influence of storage, might be responsible for the existence of "protected virus" was suggested by several observations. First, inconsistencies encountered seemed to be associated with the use of fritted glass filters. However, it was also evident, from a considerable body of experience, that fritted glass filters could be used satisfactorily. Second, the kind of inconsistency observed was not encountered by laboratories when Seitz-type filters were used, nor was it encountered in the preparation of vaccine for the field trial when Seitz-type filters for the most part were used.

CURRENT FILTRATION AND INACTIVATION REQUIREMENTS

Physical homogeneity as a necessary prerequisite for satisfactory inactivation can be approximated by requiring the application of proper filtration procedures in fixed time relationships to the inactivation process. This is being done by requiring that (1) the preinactivation filtration be carried out not longer than 72 hours prior to initiating the formaldehyde treatment, and (2) a second filtration be carried out during the inactivation process, at the time when infectivity is reduced to a point at or below the minimally detectable level, and several days prior to the taking of the first 500 ml. safety-test sample. By these practices, the degree of physical homogeneity required for a consistently reproducible process is maintained. Precipitates or aggregates above a certain size are eliminated both before formaldehyde treatment is begun and again during the process and prior to termination of the inactivation procedure.

The type of filter to be employed, the number required, and the maximal volumes to be passed in order to provide the kind of assurance desired have been specified in the current requirements. The purpose of these steps is to provide assurance of effective contact between the virus particles in suspension and formaldehyde throughout the inactivation process. Approximately a one-million-fold reduction in infectivity titer is effected in any two to three-day period, and filtration in the course of processing is to be performed sometime between the third and sixth day of formaldehyde treatment. Therefore, any virus released from crystalline or amorphous precipitates, or disaggregated during the last filtration, will still be exposed to an inactivating force of at least three days of formaldehyde treatment. The absence of particles greater in size than can pass the filtration procedure prescribed is considered to be the key to consistently complete inactivation.

If any manufacturer wishes to introduce additional filtration steps beyond those prescribed, or additional treatments that have virucidal effects, these, too, may be employed. But it should not be expected that such additional treatments would create greater safety, since complete inactivation is probably more dependent on the absence of protected virus in aggregates than on the particular inactivating method employed.

TISSUE CULTURE SAFETY TESTS

Subsequent to the last filtration, and at a point in time when it may be presumed that virus infectivity is destroyed—usually six to nine days—a sample is removed from each container in which virus is being inactivated and 500 ml. is tested in tissue culture. It is necessary not only that this sample be free of demonstrable infective virus but that this also be true of a second similar sample that is removed after continued exposure to formaldehyde for an additional three days. With the elimination of particles of the size that will be retained by the filtration procedure prescribed, it may be presumed that, during the additional three-day period, the inactivating effect of the formaldehyde will be the same as that during the first three-day period of treatment, when the rate of inactivation is determined for each lot being tested.

If any sample is found to contain live virus after the application of formaldehyde for a period of time equal to three times the period required to reduce infectivity to just perceptible levels, the prescribed filtration is repeated. Subsequently there must be negative tests for virus on two 500 ml. samples removed three days apart in the course of further processing. If the additional treatment is not successful, a review of the manufacturing process is indicated.

After the two negative tests on 500 ml. samples of the monovalent pools, a trivalent mixture is made and this is also tested in tissue culture, with use of a 1,500 ml. sample. In addition to the specific information required on each lot of vaccine, a continuous record is kept of the outcome of each monovalent strain pool started in each plant, and of each trivalent vaccine pool, to ascertain consistency of performance. A continuing record of the sensitivity of tissue culture tests for the detection of minimal amounts of virus is also maintained. The release of vaccine is contingent upon an analysis of information, not only from each individual lot but from the plant record as well.

MONKEY SAFETY TEST

A further test of safety is made by inoculation of monkeys. The monkey safety test has been shifted from its previous position, where it was applied to the trivalent pool, and has now been adapted for use as the final container test. It is required that a minimum of 5 monkeys be inoculated with samplings of each filling lot and that there be a minimum of 25 monkeys for each manufacturing lot from which these fillings are derived.

Tests made on these animals include tests for potential susceptibility, which requires the demonstration of the absence of circulating antibody in the serum prior to inoculation. In addition, samples of spinal cord segments are removed after 18 days, not only for histological study but also to permit attempts at virus isolation in those cases that are suggestively positive histologically. The need for material for virus isolation attempts arises from the observation that in a number of instances a vaccine lot was considered positive for poliomyelitis virus on the basis of questionable histological findings. The evidence now indicates that such lesions may have been due to a recent or remote encephalitis infection acquired before the test procedure and that some vaccine was discarded that would have been safe for use.

It is now evident that under usual circumstances the monkey safety test is less sensitive than the tissue culture tests prescribed—because the volume that can be tested in tissue culture is greater, and because the strains of virus included in the vaccine are less infective in monkeys than in tissue culture. However, an effort has been made to increase the sensitivity of the monkey test by increasing the susceptibility of the test animal, by increasing the number of monkeys used, and by injecting each animal with vaccine not only intracerebrally but intraspinally and intramuscularly as well.

As an additional safety test, conducted to establish the effect of vaccine administration via the route usually used in man, 12 monkeys are inoculated intramuscularly, each with 3 ml. of undiluted vaccine given in divided doses and at weekly intervals. These monkeys were formerly considered only as part of the potency test but now can be considered as an integral part of the monkey safety-testing scheme. They now receive an additional intracerebral injection and are studied histologically for evidence of lesions in the spinal cord.

POTENCY TESTS

Although the present potency tests and criteria are satisfactory for practical purposes, studies are being made to determine the best methods for increasing the discriminatory power of the test. However, the principle will remain the same, in that a reference vaccine will continue to be used. The potency of this reference standard has been established by test in children who have no antibodies for any of the three types.

A number of suggestions have been made for using different animals or different test plans for establishing potency. The most rational approach is to use a reference vaccine standardized for its performance in children, as is now in effect. Therefore, the problem is one of level of acceptability and of technique for establishing the relationship to the standard of reference. These questions are still under study and will be evaluated as comparisons can be made of the relative potencies of the vaccines used this past summer and their performance in the heavily epidemic areas.

STRAIN COMPOSITION

It is the opinion of the committee that vaccine properly made by the present methods with the Mahoney strain provides an entirely safe immunizing agent. Nevertheless, a change in the type 1 strain is being considered to find a less virulent strain with equal or better immunizing capacity, stability, filterability, and other characteristics of importance in manufacturing.

This subject has been under investigation in a number of laboratories, and it is now evident that there has as yet not been found any type 1 strain that is truly "avirulent" for monkeys when given to adequate numbers of monkeys in the form of undiluted tissue culture fluid, and by all routes, including the intramuscular. Twelve strains of type 1 virus, furnished by investigators particularly interested in this problem, have been shown now to be of relatively low virulence. However, it still remains to be demonstrated whether any type 1 strains can be considered as completely avirulent when tested in a stringent manner. The present type 2 and 3 strains are in the category of strains of lesser virulence and seem to be less active in producing disease in monkeys than a number of selected type 1 strains that are in the category referred to as "avirulent" or "attenuated."

A study that has required more than a year for completion has revealed that antigenic capacity of equivalent degree is found in a number of the type 1 strains that are characterized by low virulence for the monkey. The problems that now remain to be resolved are those related to suitability for use in production, such as filterability, and especially the question of stability in the presence of the preservatives used.

In addition, information will be required on the resistance of monkeys vaccinated with any new strain to challenge with Mahoney, since field experience has been with a virus containing the latter strain. Information obtained from these studies will permit a decision on the advisability of substituting another type 1 strain for the present Mahoney strain. If another strain is established as superior to Mahoney, it should not be expected that it can be included in commercially distributed vaccine before the 1956 poliomyelitis season. The time when this will be possible cannot be determined at the present time.

SUMMARY

The Technical Committee on Poliomyelitis Vaccine is of the opinion that the principal factors that were involved in earlier manufacturing and testing difficulties have been identified and corrective measures have been taken. Among these factors is the absolute need for removal of particles within which virus may be protected from inactivation by formaldehyde. Provisions have been made to insure as far as possible the removal of such protected particles by suitably spaced filtration procedures. In addition, the safety-test program has been strengthened by improved sampling procedures in the tissue culture tests and by increasing the sensitivity of the monkey safety tests. These measures, together with continuous review of plant production records, assure the safety of released vaccine and should make possible an increased availability of vaccine.

Population Trends.—If the birth rate continues at its present high level, the population of our country will pass the 200 million mark before 1970 and will exceed 220 million by 1975. . . . Currently, there are almost 60,000,000 people in our country under age 20 and nearly the same number at ages 20-44; somewhat more than half that number—about 33,000,000—are in the age range 45-64, and not far from 14,000,000 are at ages 65 and over. Each of these groups will increase, with the most rapid growth expected at the younger and the older ages. . . . The sex ratio as well as the age composition of the population is expected to change in the years to come. . . . Females outnumbered males for the first time in the Census of 1950, but by only 1%. This margin, it is estimated, will grow to 3% by 1975. This trend will reflect the rapid rise in the excess of females over males at the ages 45 and over. At ages 45-64, females will exceed males by more than 10% in 1975; at ages 65 and over, the excess will be about 40%.—Future Population Trends, *Statistical Bulletin*, Metropolitan Life Insurance Company, March, 1955.

CLINICAL NOTES

ORAL THERAPY OF ADRENAL CORTICAL HYPOFUNCTION

USE OF COMBINED FLUDROCORTISONE ACETATE AND HYDROCORTISONE

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The treatment of adrenal cortical hypofunction (Addison's disease) has evolved from the fairly unpredictable precarious control of the patient by the use of oral ingestion of high doses of sodium chloride to a more precise, effective, physiological management based on the use of intramuscular administration of desoxycorticosterone acetate in oil. Pellet implantation of the same steroid soon led to even more exact control of adrenal cortical hypofunction with less frequent administration of the necessary steroid. Infrequent intramuscular therapy has been achieved more recently by administration of aqueous suspensions of other esters of desoxycorticosterone; in particular, the trimethylacetate derivative, which has been used with success, may be administered only once every four weeks in most patients.[1] The use of desoxycorticosterone trimethylacetate, plus supplementary oral therapy with cortisone, until recently, has resulted in optimum therapeutic control of most patients with adrenal cortical hypofunction. The use of oral therapy involving cortisone alone yielded incomplete electrolyte regulation in most patients, although the carbohydrate disturbances were adequately controlled in all. In an attempt to overcome the need for parenteral administration of desoxycorticosterone acetate in the patient with adrenal cortical hypofunction, this substance has been employed in lingual form.[2] In adequate dosage, sublingually given desoxycorticosterone with cortisone given orally has resulted in the satisfactory management of some patients with adrenal cortical hypofunction. The sublingual route of administration gives variable therapeutic results, believed to be due to faulty or irregular sublingual absorption and inability of the patient to prevent most of the active material from being washed down the stomach by salivary secretion.

In an attempt to accomplish effective, well-controlled maintenance of patients with adrenal cortical hypofunction, with less frequent oral administration, fludrocortisone acetate (9-α-fluorohydrocortisone) has been administered to patients with primary and secondary adrenal cortical hypofunction.[3] The recent studies using fludrocortisone acetate have indicated that in addition to its antiphlogistic and corticotropin (ACTH)-inhibitory

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[1] Thorn, G. W.; Jenkins, D.; Arons, W. L., and Frawley, T. F.: Use of Desoxycorticosterone Trimethylacetate in the Treatment of Addison's Disease, J. Clin. Endocrinol. 13:957-973 (Aug.) 1953.

[2] Meier, R.; Gysel, H., and Mueller, R.: Die Wirkung des Desoxycorticosteronglucosids (Percorten Z. G.) auf die Nebenniereninsuffizienz, Schweiz. med. Wchnschr. 74:93 (Jan.) 1944.

properties, this compound may induce sodium retention when administered orally or applied topically.[4] Our preliminary studies with this compound in patients with the adrenogenital syndrome showed that in addition to effective inhibition of endogenous corticotropin secretion in doses of 2 to 3 mg. per day fludrocortisone acetate also produced the undesirable effect of profound sodium retention in these patients.[5] Thus, the marked oral effectiveness of the drug in inducing sodium retention and the accompanying edema gave promise for its use in the oral control of patients with adrenal cortical hypofunction. Fludrocortisone acetate together with hydrocortisone has been administered orally to six patients with adrenal cortical hypofunction. Four of these patients were diagnosed as having primary adrenal cortical hypofunction; three due to idiopathic adrenal cortical failure and one as a result of adrenal cortical hypofunction following total adrenalectomy for adrenal cortical hyperfunction (Cushing's syndrome). The remaining two patients have adrenal cortical hypofunction secondary to pituitary failure; one has pituitary insufficiency following radiation therapy for acromegaly and the other secondary to a suprasellar neoplasm. All patients have been maintained on hydrocortisone administered in doses of 10 mg. twice a day and fludrocortisone acetate administered in doses of 0.25 mg. every other day. The control of the patients with oral administration of these two drugs has been accomplished with ease (see table). Adequate control has been achieved for periods of 6 to 14 months. Two of these patients had previously been well maintained on 50 mg. of desoxycorticosterone trimethylacetate administered every fourth week. The effectiveness of the medication has been repeatedly demonstrated by the fact that, when the dose of fludrocortisone acetate was discontinued, adrenal cortical hypofunction of a severe nature intervened within 7 to 14 days after the ingestion of the last dose. Reversal of this induced adrenal cortical hypofunction was readily accomplished upon reinstituting larger oral doses of fludrocortisone, in the range of 0.5 to 1.0 mg. per day, for three to four days.

Control of Adrenal Cortical Hypofunction with Fludrocortisone Acetate and Hydrocortisone†*

Case No.	Age, Yr.	Sex	Diagnosis	Duration of Treatment, Mo.	Previous Therapy
1	29	F	Secondary adrenal cortical hypofunction (suprasellar neoplasm)	7	None
2	45	F	Primary adrenal cortical hypofunction	13	Desoxycorticosterone trimethylacetate, 50 mg. every mo.; *cortisone, 20 mg. every day*
3	60	M	Secondary adrenal cortical hypofunction; pituitary irradiation	7	Desoxycorticosterone trimethylacetate, 25 to 37.5 mg. every mo.
4	50	M	Primary adrenal cortical hypofunction	6	Desoxycorticosterone acetate, 2.5 mg. every day
5	29	F	Adrenalectomy for adrenal cortical hyperfunction (Cushing's syndrome)	14	Cortisone, 12.5 mg. twice daily
6	39	M	Primary adrenal cortical hypofunction	12	Desoxycorticosterone trimethylacetate, 50 mg. every 4 to 5 wk.; cortisone, 10 mg. twice daily

* 0.25 mg. given every other day.
† 10 mg. given twice a day.

The derivation of the dose of fludrocortisone was based upon the effectiveness of this steroid in controlling symptoms of adrenal insufficiency and in avoiding manifestations of overdosage using the following three clinical guides: (1) weight gain, (2) the presence of edema, and (3) alteration in blood pressure. Using these three criteria, evidence of overtreatment or inadequate therapy is readily apparent. The dose of fludrocortisone acetate is then promptly and easily altered so that the deviation from the normal is adequately corrected.

Evidence of overdosage with the halogenated steroid occurred when 0.5 mg. of fludrocortisone acetate was administered every day and was characterized by the usual classical disturbances noted after desoxycorticosterone overdosage. These included edema, headache, hypertension, weight gain, and cardiac enlargement. It should be mentioned, however, that these untoward reactions were readily dissipated within three to five days merely by discontinuing treatment with the drug.

The therapeutic range for fludrocortisone acetate, while admittedly small, was sufficient to permit precise management of all patients with adrenal cortical hypofunction. While 0.25 mg. of fludrocortisone acetate administered every other day adequately controlled all the patients, the same dose administered daily invariably produced the overdosage effects outlined above within a period of five to eight days. Discontinuing the dose for three to five days and then resuming the average maintenance dose of 0.25 mg. every other day resulted in subsidence of toxic reaction followed by adequate maintenance in all. It should be noted that one patient, a 50-year-old Negro male (table, case 4), with adrenal cortical hypofunction and evidence of decreased glucose tolerance, was adequately maintained on the dose regimen described above for a period of five to six months with excellent therapeutic effectiveness. Prior to the oral use of medication, this patient required daily intramuscular administration of desoxycorticosterone acetate. However, since he took the parenteral therapy intermittently he was usually under inadequate control and exhibited at times all the signs of moderate adrenal cortical hypofunction. These were characterized by intermittent fainting spells, weakness, and tiredness. Since the patient

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3. Fried, J., and Sabo, E. F.: Synthesis of 17-α-Hydroxycorticosterone and Its 9-α-Halo Derivatives from 11-epi-17-α-Hydroxycorticosterone, Communications to the Editor, J. Am. Chem. Soc. **75**: 2273-2274 (May 5) 1953; *9-α-Fluoro Derivatives of Cortisone and Hydrocortisone*, Communications to the Editor, ibid. **76**: 1455-1456 (March 5) 1954. Fried, J.: Biological Effects of 9-α-Fluorohydrocortisone and Related Halogenated Steroids in Animals, Ann. New York Acad. Sc. **61**: 573-581 (May) 1955.

4. Renold, A. E., and others: Biological Effects of Fluorinated Derivatives of Hydrocortisone and Progesterone in Man, Ann. New York Acad. Sc. **61**: 582-590 (May) 1955. Fitzpatrick, T. B.; Griswold, H. C., and Hicks, J. H.: Sodium Retention and Edema from Percutaneous Absorption of Fludrocortisone Acetate, J. A. M. A. **158**: 1149-1152 (July 30) 1955.

5. Kupperman, H. S., and others: Comparative Effects of Metacortandracin, 9-α-Fluorohydrocortisone and Hydrocortisone upon ACTH Secretion in Man, J. Clin. Endocrinol. **15**: 911-922 (Aug.) 1955.

has been maintained on therapy orally none of these untoward sequelae have been noted, inasmuch as he has found it convenient to maintain himself as directed and the discomfort of daily injections has been obviated by the oral therapy. It is interesting to note that the increased pigmentation previously observed in this patient had decreased considerably while the patient was receiving the combined halogenated steroid and hydrocortisone therapy.

SUMMARY

The effectiveness of fludrocortisone acetate (9-α-fluorohydrocortisone) and hydrocortisone given orally in the recommended doses proved to be an effective means of controlling patients with adrenal cortical hypofunction (Addison's disease), due to idiopathic insufficiency, surgical ablation, adrenal cortical atrophy, or secondary to pituitary insufficiency. All the patients who have been observed on this combined therapy were adequately controlled, were easily maintained, and showed no signs of hypernatremia when the recommended doses were employed. The method lends itself well to the management of adrenal cortical hypofunction, since there is no pain or inconvenience associated with administration, flexibility of dose is easily accomplished, and steady control of the patient is easily attained without noticeable fluctuation in symptoms of fatigability and muscular weakness.

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USE OF THE IMAGE AMPLIFIER IN CARDIOVASCULAR DIAGNOSIS

Henry A. Zimmerman, M.D., Cleveland

The image amplifier allows one to do fluoroscopy in a lighted room, thereby allowing one to use cone vision rather than rod vision. This does away with the prolonged period of time, 15 to 30 minutes, it takes to secure full rod vision to see clearly detail in the present Patterson 2 B type of fluoroscopic screen. In theory the Fluorex image amplifier is an electronic vacuum tube and works as follows (fig. 1): X-rays, when they are generated by the x-ray tube, pass through the patient and then, in the ordinary fluoroscope, hinge upon the fluoroscopic screen. With the image amplifier, these rays, as they emerge from the patient, are collected on a 5 in. fluorescent screen located just within the inner surface of the glass vacuum image amplifier tube. In close contact with the fluorescent screen is a photoelectric surface. Light produced on the screen by the x-rays is converted into an electronic image surface by the photoelectric surface. Then, by a series of lenses, the electronic image is focused, and, by applying a potential of 30,000 volts, the electrons are accelerated towards the aluminum back phospholayer, which is 1 in. in diameter. At this screen the electrons arrive with increased velocity and are condensed into a smaller area. The resulting image on the output phosphor has been increased in brightness by 200 times that originally produced on the input fluorescent screen. The image is then viewed in true orientation to the patient undergoing examination by the optical system. Regardless of the position of the viewing system, one always sees the image in the same relationship to the patient. Figure 2 shows the optical system in a schematic way.

In my experience, the only disadvantage to this system is the 5 in. area or field that can be viewed at any one time. However, as one gains experience with the instrument, this becomes a minor objection. With the use of the image amplifier the irradiation to the patient and to the personnel can be markedly reduced. This is brought about by reduction in the tube current due to the intense brightness from the image amplification. Usually, good visualization can be obtained at 70 kv. with 2 ma. Either a single-view or a double-view mirror can be used to view the resulting image. With the single-view mirror only one person can view the image at a time.

With the intensity of brightness of the image amplifier one is able to photograph directly from the viewing mirror an image that can be easily photographed. I have been taking movies of the screen showing the beating of the heart, as well as pictures of the aorta, the lung fields, and the pulmonary vascular tree. In early 1956, I have been told, the Westinghouse Corporation will market a camera that will be housed directly in the lens system and will give better motion pictures of the beating heart and vessel pulsations. This should make angiocardiography a fascinating, helpful, and useful method of examination, as 36 or 72 frames per second can be taken as compared to the one or two pictures per second that can now be taken with the automatic cassette changer or automatic camera.

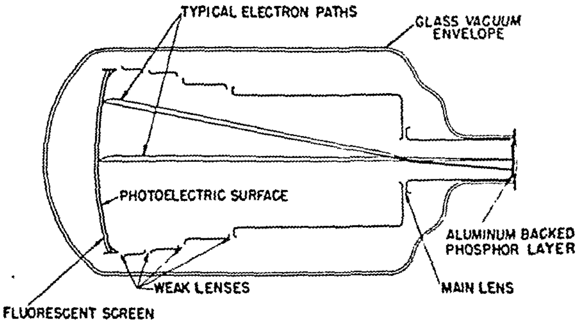

Fig. 1.—Schematic drawing of component parts of the Fluorex amplifying tube.

ADVANTAGES

I have found the image amplifier is a major advance in the technique of intracardiac catheterization, and, with personal experience with over 1,000 intracardiac catheterizations done with the conventional fluoroscope, I can say that the image amplifier is a major advance in the technique in instrumentation of doing intracardiac catheterizations. It allows one to see the catheter tip at all times, and this is true even in large hearts where, with the conventional system of fluoroscopy, many times the catheter tip was lost from view. This is especially true when the catheter crosses the vertebral bodies. It also

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Director of the Marie E. Coakley Cardiovascular Laboratory and Director of the Cardiovascular Section, Division of Medicine, Saint Vincent's Charity Hospital.

gives an excellent picture of the position of the catheter in intra-atrial septal and interventricular septal defects. With the use of the image amplifier one actually gets a three-dimensional effect when viewing the catheter, and one can tell exactly whether the catheter is pointing to the side, anteriorly, or posteriorly. This is a difficult task to ascertain, in fact almost impossible under the conventional fluoroscope. One can clearly see the catheter in the lung structures as well. With the catheter in the heart one is able to see clearly the extent of infundibular stenosis by correlating the movement of the catheter with pressure tracings taken simultaneously. Another great advantage of the image amplifier in doing cardiac catheterization as far as the patient is concerned is that he is not put in a dark or light-proof room, and, consequently, much of the fear and apprehension caused by the procedure is done away with. Figure 3 shows an image amplifier unit installed in the cardiovascular laboratory.

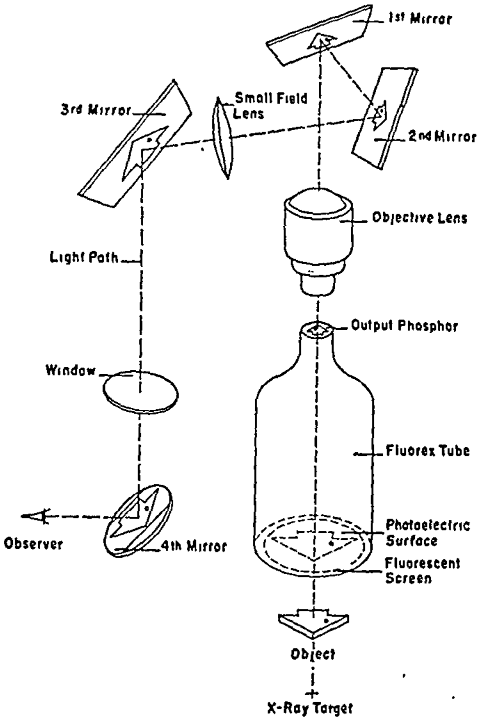

Fig. 2.—Schematic drawing of optical system of image amplifier.

Calcification in the ring or in the aortic or mitral valve cusps can actually be visualized with the image amplifier. This has always been a difficult, if not impossible, thing to determine with routine fluoroscopy; and, unless a special technique is used, it is difficult to photograph on an x-ray film. Calcification in the coronary arteries can actually be seen at times, as can calcifications in the wall of the myocardium as seen in healed infarctions of the myocardium. Another use of the image amplifier is to determine the amount, if any, of pulsation and the type of pulsation of the heart, and ventricular aneurysms are much more easily recognized and studied by this method. By varying the kilovoltage and the milliamperage a great deal of contrast can be obtained and the pulsations can be seen and can be readily studied. The old problem of whether pulsation is extrinsic or intrinsic is much more simple to resolve. A man, aged 40, was found to have a suggestive bulge on his left midcardiac border. On viewing this area under the image amplifier, distinct paradoxical pulsations could be seen. The diagnosis of an aneurysm of the left ventricle was readily made. A movie of this pulsation was taken for additional study and permanent record.

Another difficult problem made much easier or resolved by the image amplifier is the determination of pulsations in the pulmonary arteries and in the pulmonary circulation. This, many times, is a crucial point in an infant or a young child in telling whether the vascularity to the lungs is normal, decreased, or increased. This has been a rather simple and easy differentiation to make with the use of the image amplifier, as one can actually clearly see the pulsations and the vigorous indentation of the pulmonary artery. The problem of a pulmonary arterial venous aneurysm in the lungs can be definitely illuminated by direct visualization. Also, in isolated tumors or nodules in the lung, the problem of intrinsic and extrinsic pulsation can usually be resolved quite easily with the image amplifier. Recently a physician, aged 38, had acute chest pain after an auto accident. A chest x-ray showed a mass in the area of the pulmonary artery in the left lobar area. This was interpreted on fluoroscopy, by the radiologist, as an aneurysm of the pulmonary artery. Visualization by the image amplifier showed what appeared to be a cyst with no intrinsic pulsations. Angiocardiography was carried out and proved the mass to be nonvascular. At operation a cyst of the thymus was found and removed. This shows how well one can see with the aid of the image amplifier. Calcium in the ascending aorta in syphilitic aortitis and in the knob of the aorta in arteriosclerosis of the aorta is quite easily delineated and studied.

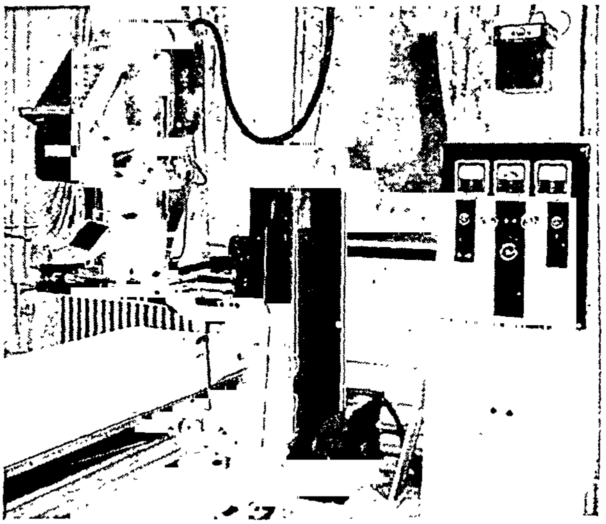

Fig. 3.—Instillation of image amplifier in the cardiovascular laboratory. Note double-view mirror that allows two people to view image at the same time.

SUMMARY

The image amplifier represents a definite advancement in the diagnosis of cardiovascular disease. It allows the use of cone vision, lessens the exposure of the personnel and of the patient to radiation, allows one to carry out intracardiac catheterization with complete vision of the catheter at all times, allows one to determine the extent and the magnitude of pulmonary blood flow, makes for the easy detection of calcium in the aortic and mitral valves, clarifies the problem of extrinsic and intrinsic pulsations in nodules or masses in the lungs and their difference from vascular lesions, and allows taking of motion pictures of the visualized pathology for more detailed studies.

250 Hanna Bldg. (15).

POCKET MEDICAL KIT

Harry E. Barnett, M.D., Chicago

A light-weight pocket-sized medical kit that contains a selection of closely fitted diagnostic instruments, therapeutic equipment, and medicaments has been assembled. Originally planned for orthopedic surgeons, the kit has been modified so that it can be used by general practitioners, as well as by various types of specialists, as an auxiliary "doctor's bag" or as an emergency kit. It may be useful in routine practice and should be especially valuable for unexpected emergencies.

The leather case (fig. 1) is 5 by 4.5 by 0.75 in., weighs 14.5 oz. when fully outfitted, and contains the following items: (1) steel knife with 2.5 in. blade (fig. 1*A*) in which the knife also serves as a handle for the screwdriver, file, and reflex hammer, which are attached to it by a spring-locking mechanism; (2) a plastic ruler, with a magnifying lens and a flat surface that can be used as a tongue blade (fig. 1*B*), which is 3 in. long and is graduated in inches and centimeters; (3) screwdriver and file (fig. 1*C*), which attach to handle of knife; (4) metal case containing 1 cc. syringe and needle (fig. 1*D*), which may be sterilized and kept covered by a rubber or metal cap; (5) reflex hammer (fig. 1*E*), which inserts into the knife handle to form an adequately weighted and properly balanced instrument (fig. 2*A*) and in which a pin is also contained, readily available for testing sensation, magnetized for use in removing metallic foreign bodies, and equipped with a thin metal ledge underneath for spreading casts; (6) two 1 cc. ampuls of medicaments for injection (fig. 1*F*), such as ephedrine sulfate and morphine sulfate; (7) single cell battery flashlight (fig. 1*G*) in which mercury batteries may be used for longer battery life; (8) steel case with 42 in. cloth tape measure on pushbutton spring return mechanism (fig. 1*H*); (9) stethoscope diaphragm (fig. 1*I*) from which a monaural stethoscope (fig. 2*B*) may be formed by attaching the diaphragm to the rubber tubing with its adapter and earpiece (fig. 1*Q*); (10) disposable cartridge containing 600,000 units of penicillin in aqueous suspension, with covered sterile needle (fig. 1*J*) with which the thermometer case (fig. 1*R*) is used as a plunger for intramuscular injections (fig. 2*C*); (11) perle of aromatic ammonia (fig. 1*K*); (12) two plastic vials with cork stoppers (fig. 1*L*) for orally or hypodermically administered medicaments such as codeine sulfate and morphine sulfate tablets; (13) 3 in. tissue forceps (fig. 1*M*); (14) 4.75 in. scissors (fig. 1*N*) with blunt and pointed ends for removing bandages or sutures; (15) ballpoint pen (fig. 1*O*) that can also be used as a skin-marking pencil; (16) black silk suture material and 2.5 in. straight-cutting needle contained in a sterile packet (fig. 1*P*) or in a sterile glass vial; (17) rubber tubing (fig. 1*Q*), which can be used as a tourniquet, and, with the earpiece and the metal adapter at its opposite ends, it forms a part of the monaural stethoscope (fig. 2*B*); and (18) thermometer in a metal case (fig. 1*R*) that is also used as a plunger for the penicillin tube (fig. 2*C*).

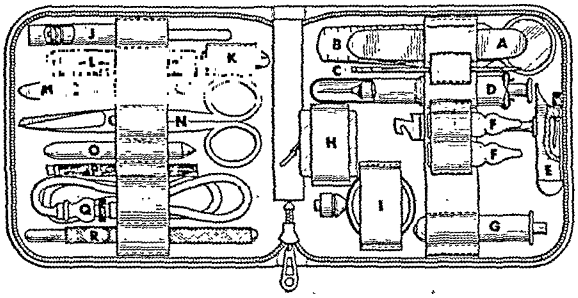

Fig. 1.—Pocket medical kit opened to show arrangement of contents. *A*, steel pocket knife; *B*, plastic ruler with magnifying lens and tongue blade (steel ruler and goniometer may be substituted); *C*, screwdriver and file; *D*, syringe and needle in metal case; *E*, reflex hammer and pin; *F*, ampuls; *G*, flashlight; *H*, tape measure (container for additional medicaments or nasal and aural speculums may be substituted); *I*, stethoscope diaphragm; *J*, disposable cartridge of penicillin (large vial for medicaments or a hemostatic forceps may be substituted); *K*, aromatic spirits of ammonia; *L*, two plastic vials for medicaments; *M*, 3 in. tissue forceps; *N*, scissors; *O*, ballpoint pen; *P*, sterile needle and suture material; *Q*, rubber tubing with earpiece and adapter for stethoscope diaphragm; and *R*, thermometer in metal case.

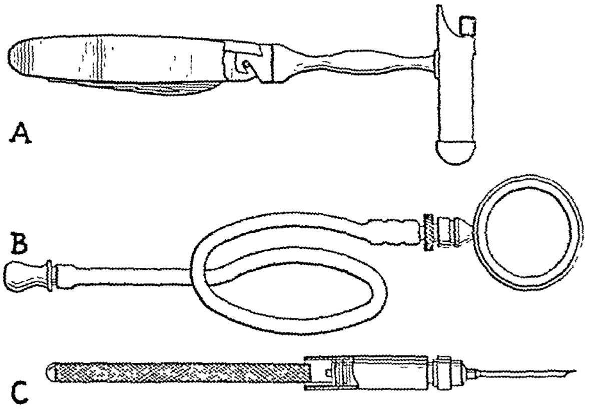

Fig. 2.—Assembled instruments. *A*, handle of knife also serves as handle of reflex hammer Screwdriver-file attaches in similar manner. *B*, rubber tubing with earpiece and adapter forms monaural stethoscope when attached to diaphragm and may also be used as a tourniquet. *C*, metal thermometer case is used as plunger for disposable penicillin cartridge.

The inside of the leather case is stamped with the outlines of the contents to facilitate reinsertion of the various items into the proper compartments. A zipper encircles three sides of the leather case, and closure is accomplished with speed and ease. The kit is sufficiently compact so that it may be carried at all times in the back trousers pocket or in a coat pocket, in much the same way that a wallet or a pocket secretary is carried. Women physicians may carry it in a handbag. By having the kit

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From Michael Reese Hospital.

The pocket medical kit may be assembled by obtaining the proper size leather case and the suggested instruments and vials from surgical or hospital supply companies. The thermometer case, reflex hammer, syringe case, and magnifying lens-ruler have been especially designed for this kit and may be ordered from V. Mueller and Company. The entire kit will be assembled under the name "Pocket Medikit" and may be obtained from V. Mueller and Company, Chicago.

available at all times the physician is prepared for unexpected medical emergencies away from the hospital and office, e. g., at home, on vacations, and at social or sporting events. The contents of the kit may be varied, in keeping with the specialty of the physician. The measuring tape may be replaced by a metal container for additional medicaments or by a nasal and aural speculum. The plastic ruler and magnifying lens may be replaced by a combination steel ruler and goniometer. The ruler is graduated to 4 in., and the goniometer has a range of 180 degrees. The penicillin ampul may be replaced by a large vial for tablets or capsules or by an instrument such as a tuning fork or a hemostatic forceps.

The diagnostic instruments in the kit enable the physician to test sensation and tendon and pupillary reflexes and to measure joint motions, lengths of extremities, and circumference of head and limbs without need for additional apparatus. The bandage scissors is frequently used in hospital rounds, and its availability eliminates the need for the frequent requests that are made for this instrument from hospital nurses. For painful injuries and ailments, the codeine or morphine may be given orally or hypodermically at the time of initial examination or treatment in the home, office, or hospital outpatient department. Sufficient orally administered medicaments may also be left with the patient for relief of symptoms until a prescription can be filled. This is especially important in areas where pharmacies are closed throughout the night. Minor lacerations may be sutured away from the hospital or office by means of the needle, black silk, tissue forceps, and scissors. The monaural stethoscope is efficient in transmitting heart and lung sounds. A rubber earpiece provides better holding power with less possible trauma within the external ear canal. In a noisy room the other ear may be closed by inserting the tip of the finger. The availability of the monaural stethoscope may encourage its more frequent use by physicians who ordinarily do not carry this instrument. A pocket can be added to the outside of the kit to hold a few prescription blanks and important charts, such as antidotes for poisons and dosages of newer drugs.

SUMMARY

A pocket medical kit that contains 24 essential and frequently used diagnostic and therapeutic instruments and medicaments is designed for use by physicians in general practice and in various specialties. Light in weight and compact in size, it can be carried in a pocket, handbag, or glove compartment of a car. Its usefulness to the physician in routine practice and in unexpected emergencies is enhanced by the ease with which it may be carried at all times.

116 S. Michigan Ave.

Radioactive Iodine in Hyperthyroidism.—The use of radioactive iodine in treating patients with hyperthyroidism is based upon two facts: 1. The natural avidity that the thyroid has for collecting iodine, either stable or radioactive. 2. Within the thyroid the radioactive iodine decays by emitting high energy beta rays which penetrate only a few millimeters into the tissue; beta rays act the same as the secondary electrons which are produced by roentgen rays and serve to destroy tissue.—E. M. Chapman, M.D., and Farahe Maloof, M.D., The Use of Radioactive Iodine in the Diagnosis and Treatment of Hyperthyroidism: Ten Years' Experience, *Medicine,* September, 1955.

SPECIAL ARTICLE

HAZARDS OF MODERN DIAGNOSIS AND THERAPY—THE PRICE WE PAY

FRANK BILLINGS MEMORIAL LECTURE

David P. Barr, M.D., New York

"First of all, be sure you do no harm: *Primum non nocere.*" In all ages this admonition has been fundamental to the practice of medicine. It applied to the use of all the empirical drugs of ancient and medieval times. Failure to regard it inspired the scathing satires of Molière and was responsible for the research of Pierre Louis and the reforms of Oliver Wendell Holmes and Ignaz Semmelweis. The admonition applied in the age of nihilism, when most of the useless drugs of the past had been abandoned and when Osler could find only a dozen or so to recommend for detailed study by his students. Even then, the few great drugs were as well known for their toxic as for their therapeutic effects. Mercury, the recognized specific for syphilis, could cause salivation and loosening of teeth as well as irreparable renal damage. In slight overdosage, digitalis, so helpful in dropsy, was responsible for frequent discomfort and occasional sudden death. The admonition applied during the last half century, when we saw enthusiastic introduction of many therapeutic measures later recognized as unkind, futile, or hazardous. We can shudder now when we remember outdoor treatment of pneumonia, cold tub baths for typhoid, starving of fevers, and withdrawal of water in cholera. We hesitate to think of the harm unwittingly done by the use of aminopyrine, cinchophen, and dinitrophenol. Their wrongful use and many other errors plague our recent past and make us insecure in our present judgments.

Today, when multitudes of new and relatively untried diagnostic and therapeutic procedures form an integral part of the practice of medicine, the admonition "Be sure you do no harm" applies more than ever before. Diagnostic methods formerly simple are becoming increasingly complex and formidable. Sanctioned practice includes use of injections of organic substances for visualization of liver, gallbladder, urinary tract, bronchi, lungs, heart, blood vessels, and spinal canal; air injections for visualization of the brain; cystoscopies, bronchoscopies, esophagoscopies, and gastroscopies; punctures with large needles of bone marrow, liver, and even of lungs, spleen, and kidneys; and catheterization of the great vessels and heart. Therapeutic preparations are confusingly numerous and varied. In the lists of 1953, more than 140,000 medicaments were available to practitioners, and 14,000 new preparations were added during the year. Accretion is still far greater than deletion, although it has been estimated that perhaps 90% of drugs now in common use have been introduced within the last 25 years.[1]

Read before the Section on Internal Medicine at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

[1] Brown, E. A.: Problems of Drug Allergy, J.A.M.A. 157:814 (March 5) 1955.

Although incalculable benefits have come to mankind with the introduction of these newer diagnostic and therapeutic procedures, hazards of medical management have at the same time enormously increased. Not one of the occasionally indispensable diagnostic tests may be undertaken without risk. The simplest as well as the most complicated possesses inherent danger. Infection may be introduced by a needle; sudden death may follow the intravenous administration of such a relatively inert substance as dehydrocholic acid (Decholin). Furthermore, no agent that can modify the internal environment or organic integrity of the body can be used without hazard. As yet no drug has been found with a single action, and no human body with a single reaction. Risks accompany the use even of those remedies that are regarded as safest. Acetylsalicylic acid is usually given with apparent impunity; yet coryza, bronchospasm, conjunctival injection, eruptions, thrombocytopenic purpura, fever, shock, cardiovascular collapse, and death have followed its use.[2] Although penicillin is correctly regarded as the least toxic of potent chemotherapeutic agents, Welch, Lewis, and Kerlan estimated that from its use 100 to 200 acute anaphylactic-like reactions occur each year.[3]

These accidents, risks, and dangers may be regarded as the price that we, as responsible physicians, must pay for the inestimable benefits of modern diagnosis and therapy. They are the hazards to which, with best intent and most correct practice, we must occasionally subject our patients. In the following discussion about the price we must pay for modern management of disease, care has been taken to exclude from consideration all examples of carelessness, misconduct, malpractice, as well as the use of nostrums, patent medicines, and other unacceptable or condemned remedies. It is believed that all the herein-cited accidents and misfortunes may result on occasion even with enlightened thoughtful use of diagnostic and therapeutic measures by conscientious and well-informed physicians earnestly trying to help their patients. Since even a list of possible dangers would be too cumbersome, examples have been chosen arbitrarily as illustrative of the extent and variety of hazards in our daily work. For orderly presentation, they have been arranged under headings representative both of types of unfavorable responses and of special accidents that may arise in the use of single agents or groups of agents having similar actions.

ACCIDENTAL DRUG INTOXICATION

One of the great hazards in the use of potent drugs is their inherent toxicity that, with wide individual variation, will develop intoxication in any patient if the dose is large enough. An outstanding example is digitalis, in the use of which only a narrow margin separates therapeutic and toxic dosage. In spite of the availability of highly purified crystalline preparations, the dangers of the drug appear to be greater now than ever before. This situation can be attributed to several factors. Among them are dogmatic insistence upon oversimplification of dosage and prevalence of rapid digitalization and intravenous administration. Other factors are related to the use of digitalis in older patients in whom life has been prolonged by other measures and in whom the myocardium is more susceptible to the action of the drug because the failure is more severe. Also implicated is the variable responsiveness to digitalis that results from increasing dependence in cardiac therapy on the manipulation of electrolytes by restriction of sodium in the diet, the stimulation of sodium excretion by mercurial diuretics, and the use of ammonium chloride, cation exchange resins, carbonic anhydrase inhibitors, and cortisone.[4] Whatever may be the factors, the use of digitalis constitutes today one of the most frequent causes of "iatrogenic" disease. Toxic actions are illustrative of the dangers that may be encountered with less well studied and newer drugs. Similar hazards are inherent in the administration of such drugs as scopolamine, curare, and bishydroxycoumarin (Dicumarol), the dangers of which are less important only because these drugs are less frequently used.

MODIFICATION OF INTERNAL ENVIRONMENT

Although the homeostasis of the body is modified by a vast number of drugs in ways but vaguely appreciated, it is most strikingly changed by parenteral injection of fluids of variable composition and by agents that modify the rate of excretion of water, electrolytes, and other substances through kidneys or intestine. Modifications that can be produced by these measures are alarming in variety and degree and only partially predictable. Sodium may be seriously depleted, not only by the sweating that results from hot weather and by restriction of sodium in the diet, but by mercurial and other diuretics.[5] Potentially serious hypopotassemia, with its muscular weakness and cardiac complications, may be promoted by many factors, including acidosis, intravenous injection of glucose and insulin, and the administration of ammonium chloride, commonly used resins, a carbonic anhydrase inhibitor, cortisone, or desoxycorticosterone acetate.[6] Alkalosis and hypochloremia with their baffling nervous and mental symptoms may follow administration of large amounts of alkalis, such as sodium bicarbonate and sodium lactate or may result from gastric suction with removal of excessive amounts of gastric hydrochloric acid.[7] Severe hyperchloremic acidosis with its simulation of cerebral vascular accidents, terminal renal disease, and other forms of acidosis may accompany treatment of heart failure with mercurial diuretics.[8] Acidosis with many troublesome symptoms may follow the administration of ammonium chloride.[9]

These and many other reactions from the use of parenterally given fluids and diuretics are illustrative of the general principle that no modification of homeostasis can be simple and that the manipulation of one factor by drugs or fluids may have unpredictable and subtle effects on another.

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INTRODUCTION OF INFECTION

Entry by needles or other instruments into tissues, vessels, or cavities of the body always involves some risk of infection. After cystoscopy bacteremia is not infrequent, and infection of the urinary tract, with or without septicemia, is an occasional complication. It is suspected that the virus of homologous serum jaundice has been introduced by insufficiently sterilized needles in punctures of fingers, ears, or veins. Transfusions may be the source of serious blood stream infections. Recent reports have shown that blood banking, a practice that has saved many lives by making blood readily available, has also introduced new hazards of infection. The possibility of carrying bacteria into the blood during its removal from the donor can not be entirely excluded, and, in rare instances, relatively nonpathogenic bacteria of the Pseudomonas group may accumulate in blood stored at icebox temperature in amounts sufficient to cause fatal intoxication.[10] A much more frequent accident from transfusions is the introduction of the virus of homologous serum jaundice. It is known that a healthy person with no history of hepatitis or jaundice and exhibiting no clinical or laboratory evidence of liver disease may nevertheless carry the virus in his blood. Danger is great from transfusions of whole blood and is much greater from the use of plasma from plasma pools. Since there is at present no known effective method of prevention, hepatitis must be regarded as one of the calculated risks of blood transfusion.[10a]

ALLERGIC REACTIONS

More than 500 separate drugs are known to cause allergic reactions.[1] The unfavorable effects may be expressed by simulation of serum sickness, by the more violent reactions of anaphylaxis, or by affection of one or more of the organs of the body: the skin, bone marrow, lungs, liver, or kidneys. There is great variety and separateness in the response of individual patients to individual drugs. While many drugs cause reactions, there are only a few ways in which the body can react. Thus, the function of bone marrow can be seriously disturbed in an almost identical manner by antibiotic agents, sulfonamides, antihistaminic agents, antimalarials, barbiturates, some heavy metals, amphetamine, urethane, phenylbutazone, glyceryl trinitrate (nitroglycerin), meperidine hydrochloride, and thiouracil.[8] Drugs causing urticaria and other allergic skin reactions are still more numerous. Injury of the liver by action thought to be allergic is encountered with increasing frequency and has been reported after the use of chlorpromazine (Thorazine),[11] pyrazinamide,[12] methyltestosterone,[13] phenylbutazone,[14] and other agents whose toxic or idiosyncratic reactions are as yet only partially evaluated.

SPECIAL INSTANCES OF INTOXICATION

Antibiotics.—Because of the enormous usage of antibiotics, intoxication assumes a prominent role even though it may be statistically infrequent. No antibiotic has as yet been found free from hazards or disadvantages. The side-actions and toxic effects of penicillin have been numerous. In addition to the sometimes fatal anaphylactic responses,[15] there are eruptions of the most diverse type, all manifestations of serum sickness, disturbances of renal function, hypotension, cardiovascular collapse, or unconsciousness; there may be hematological disturbances as various as anemia, agranulocytosis, eosinophilia, and hypothrombinemia.[2]

In their entirety, toxic reactions attributable to antibiotics and chemotherapy are impressive.[16] Anaphylactic reactions have been reported occasionally from most, if not all, of the agents derived from fungi. Hepatic dysfunction has followed the use of streptomycin, chlortetracycline (Aureomycin), oxytetracycline (Terramycin), and chloramphenicol. Renal impairment has been noted after streptomycin therapy and appears as a toxic effect following administration of bacitracin, neomycin, and polymyxin. The incidence of aplastic anemia and other hematological dyscrasias developing during the use of chloramphenicol has been subjected to searching investigation by Welch and associates.[3] Difficulties inherent in attribution of toxic action to any drug appeared in their study. In this instance, as in others, history of exposure did not establish proof of causation of unfavorable symptoms. While circumstantial evidence indicated that administration of chloramphenicol was followed by an increased incidence of bone marrow depression, statistical proof of its action was not established, and it remained questionable whether chloramphenicol is essentially more toxic than some other antibiotics whose record of toxicity has excited less attention. Unfavorable actions of sulfonamides that in some measure have been lost to view because of their replacement by other agents in many therapeutic situations are numerous and include fever, eruptions, blood dyscrasias, and neuritis.

Not the least of the toxic symptoms associated with antibiotics is irritation of the gastrointestinal tract that is particularly severe after the use of tetracycline derivatives. Not infrequently, administration of these drugs has been followed by invasion of the intestinal tract by drug-resistant staphylococci causing infection that may be fatal unless administration of the offending drugs is discontinued and erythromycin therapy instituted.[17] Less serious effects of antibiotics are the development of mycotic infections in the mouth and in the gastrointestinal tract and of vitamin deficiencies attributable to bacteriostatic action on the normal intestinal flora.

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Cortisone, Hydrocortisone, and Corticotropin (ACTH).—Unfavorable reactions from the long-term administration of cortisone, hydrocortisone, and corticotropin (ACTH) are well known. In addition to the obesity, hypertension, hirsutism, and osteoporosis of adrenal cortical hyperfunction (Cushing's syndrome), reactions may include increased susceptibility to infection, hindrance of wound healing, or exacerbation of ulcers in the stomach and intestinal tract. A considerable danger results also from rapid withdrawal of the agents after prolonged use.[18]

Antihistaminics.—The antihistaminic agents, of which there are now no less than 20, must be regarded as serious causes of intoxication, more particularly since their use is chiefly among patients who are not seriously ill. Several fatalities have been attributed to them. Their side-effects, especially those observed on the nervous system, are so numerous and sometimes so severe as to suggest that their use is actually more hazardous than that of sulfonamides and antibiotics employed for the most part in treatment of infections that might otherwise result in death.[19]

Phenylbutazone and Chlorpromazine.—Phenylbutazone is a congener of aminopyrine, and its toxic effects, particularly on bone marrow, are reminiscent of the unfortunate experiences with aminopyrine. Side-effects are numerous and sometimes serious; they include edema, eruptions, and unfavorable actions on the gastrointestinal tract, hematopoietic system, central nervous system, and heart.[20] Fatal hepatitis has recently been reported.[14] It is perhaps illustrative of illogical practice that the use of aminopyrine was sharply limited by disclosure of rare instances of intoxication, while the use of a phenylbutazone may now be actually increasing. Current brochures describing clinical uses of chlorpromazine under the name of Thorazine mention its applicability for relief of nausea and vomiting, mental and emotional disturbances, alcoholism, intractable pain, and hiccoughs. Suggestions are included for its use in correction of nausea and vomiting caused by other drugs, such as diethylstilbestrol (Stilbestrol), digitalis, nitrogen mustards, broad-spectrum antibiotics, and general anesthetics. It is thought to be good also for nausea and vomiting in pregnancy. In the psychoses the drug is now being used in large doses at a time when the danger of hidden toxicity, always inherent in new and potent drugs, has been only partially evaluated. Reports of agranulocytosis following its use are in the literature.[22] The incidence of jaundice and disturbed liver function is subject to variable estimates; their nature and seriousness may be judged only by preliminary observations.[11]

HIDDEN AND GENERAL DANGERS

The history of new drugs indicates that not all their potential dangers are immediately apparent. Examples of this are the experiences with cinchophen and aminopyrine. Many years of continued use of each of these drugs elapsed before the unfavorable actions could be established. Still more difficult to evaluate is the inference that past use of drugs may be responsible for the late appearance of symptoms or for development of a chronic disease such as lupus erythematosus or periarteritis. It seems inevitable that with the increasing potency of drugs and the multitude of different reactions caused by single agents that there could be production of syndromes strikingly like those of previously known diseases. Recently, drugs have been introduced for specific purposes that may actually produce complete syndromes.

An outstanding example is the state that develops with some frequency during treatment for hypertension by hydralazine (Apresoline) hydrochloride.[23] In its complete form the syndrome may be manifested by fever; prostration; pleural, pericardial, and joint effusions; skin sensitivity to ultraviolet light; and erythematous eruptions. There may also be lymphadenopathy and splenomegaly. Laboratory studies may show decreased serum albumin and increased alpha and gamma globulin levels, increased sedimentation rate, transient false-positive tests for syphilis, and anemia and leukopenia. Sometimes L. E. cells may be demonstrated in peripheral blood and bone marrow. Histologically abnormal collagen has been seen in muscle and skin. In one case a typical rheumatic nodule was noted, and in another lymphorrhea in muscle resembling that of rheumatoid arthritis was observed. Thus a condition produced by action of a drug closely parallels the clinical, serologic, and histological picture of a serious collagen disease. Only in its reversibility and the relative infrequency of L. E. cells and renal manifestations does it deviate from spontaneously occurring lupus erythematosus disseminatus.

Such a striking simulation of disease as a side-action of a single drug lends some weight to observations that have led to suspicion that adverse action of drugs might be implicated in the pathogenesis of collagen diseases. Evidence of such a relationship has previously been less convincing for lupus erythematosus than for periarteritis nodosa, in which the work of Rich in animals has demonstrated morphological identity of lesions produced by serum sickness and sulfadiazine and the polyarteritic lesions of rheumatic fever and clinical periarteritis nodosa.[24]

DANGERS FROM MULTIPLE PROCEDURES

The danger in diagnostic and therapeutic procedures comes not so much from the use of individual tests or drugs as from the multiplication of these measures now

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commonly used in so-called diagnostic surveys and therapeutic regimens in which each symptom receives some remedy. For patients in a diagnostic clinic or in the ward of a modern hospital, the application of 20 or 30 diagnostic tests is not uncommon. Many of these tests may be repeated on several occasions. A seriously ill patient or one who has been subjected to a major operation may receive 20 to 40 different drugs in addition to numerous mechanical procedures. His management may actually require use of anesthetics, sedatives, narcotics, antibiotics in variety, phenylephrine (Neo-Synephrine) hydrochloride, arterenol, digitalis, diuretics, bishydroxycoumarin, cortisone, transfusions, infusions, and finally antihistaminics, either for the correction of symptoms of his disease or to combat the toxic manifestations of other drugs. Since such combinations of measures and medicines are frequent, it is not surprising that iatrogenic disturbances are frequent.

In a medical service in a great hospital, over a period when approximately 1,000 patients were admitted, more than 50 major toxic reactions and accidents consequent to diagnostic or therapeutic measures were encountered. Many of the incidents and accidents took place before the patient's admission to the hospital and provided the occasion for hospitalization. Others developed in the course of diagnosis and treatment in the wards. The survey was not systematic or complete, and some instances of major intoxication may have been omitted from the list. The survey took no account of such factors as inconvenience and expense to the patient, prolongation of hospitalization, minor intoxications, or hidden and delayed reactions.

There were several cases of accidental intoxication, and among these no less than 10 instances of digitalis poisoning. In one of these, ventricular fibrillation and death occurred. Serious hematuria developed in one patient from the use of bishydroxycoumarin; in another there was methemoglobinemia following the use of bismuth subnitrate; one patient was admitted with mental confusion from bromism and another for delirium following therapy with atropine. There was one idiosyncratic response to diphenylhydantoin (Dilantin) sodium and a case of hypotension and vomiting from the use of pentolinium (Ansolysen) tartrate as an antihypertensive agent. There were four examples of reaction to penicillin; one of these was anaphylactic in nature and of such severity that death was averted only by prompt treatment. Two cases of hepatic dysfunction developed during use of pyrazinamide. An acute hemolytic reaction occurred during the use of sulfadiazine. One case of monilial stomatitis and one of severe enterocolitis developed during treatment with tetracycline derivatives.

Three instances of intoxication followed the use of corticotropin and cortisone. One resulted in the formation of multiple gastric ulcers with perforation, hemorrhage, and fatal outcome. Four instances of troublesome acidosis followed use of ammonium chloride. Sensitization reactions were encountered from a number of agents. Eruptions developed from oxytetracycline, pentolinium tartrate, and myleran (1:4-dimethanesulphonyloxybutane); neutropenia from phenylbutazone; agranulocytosis from aminopyrine; and thrombocytopenic purpura from propylthiouracil.

Accidents were not limited to therapeutic procedures. In one instance, a severe blood stream infection following cystoscopy was controlled with difficulty with antibiotics. One young woman, the wife of a physician, died in acute anaphylactic shock 15 minutes after intravenous injection of dehydrocholic acid for determination of circulation rate. Another young woman, a nurse with a congenitally thin sternum, died from cardiac tamponade immediately after a sternal puncture.

In the aggregate, unfortunate sequelae and accidents attributable to sanctioned and well-intentioned diagnosis and therapy were noted in about 5% of patients admitted to medical wards. In this sense, iatrogenic disease could be regarded as one of the commonest conditions encountered during the period.

CONCLUSIONS

It is realized that such concentration on toxic and unfavorable actions of diagnostic and therapeutic measures creates a distorted picture that can be corrected only by detailed recitation of simultaneous benefits. The discussion has been offered without nihilistic intent and with grateful recognition of the triumphs of modern diagnosis and therapy. Choice of topic developed from an ever-growing conviction of the extent and variety of dangers intrinsic in the medical practice of today and from a desire to suggest that discriminating selection of measures may be more important than unreflective completeness. It is suggested that it may be as useful to the patient that his physician know when not to treat as when to treat and that the use of potentially dangerous agents for trivial or inconsequential complaints may not be justifiable. Only by such discipline and understanding may we, as physicians, avoid doing unnecessary harm and minimize the price we and our patients pay for modern management of disease.

525 E. 68th St. (21).

CHEMICAL LABORATORY

TESTS AND STANDARDS FOR NONOFFICIAL DRUGS

The following monographs were developed by the Chemical Laboratory for drugs that had been evaluated prior to Jan. 1, 1955, by the Council on Pharmacy and Chemistry. These monographs have not been published previously and are among the last of the Tests and Standards of the monographs that had been prepared during the former "acceptance" program of the Council on Pharmacy and Chemistry.

WALTER WOLMAN, Ph.D., *Director.*

Erythromycin Glucoheptonate.—Erythromycin glucoheptonate is the α-glucoheptonate salt of erythromycin, an antibiotic produced by the growth of Streptomyces erythreus Waksman. The chemical structure of erythromycin glucoheptonate has not been established.

Physical Properties: Erythromycin glucoheptonate is a white, crystalline, odorless powder. It is freely soluble in alcohol and in water, and practically insoluble in ether. The pH of a 2% solution is 6.0-7.5.

Identity Tests: Transfer to a test tube about 10 mg. of erythromycin glucoheptonate and add about 2 ml. of hydrochloric acid: a yellow color appears and changes to dark greenish yellow.

Transfer to a test tube about 5 mg. of erythromycin glucoheptonate and add 5 ml. of sulfuric acid: a red-brown color appears.

Transfer to a separatory funnel about 0.1 gm. of erythromycin glucoheptonate, and add 10 ml. of water, 1 ml. of ammonia T. S., and 10 ml. of chloroform. Shake the mixture and allow it to separate. To the aqueous solution add 10 ml. of alkaline cupric tartrate T. S. and heat to boiling: a yellow-orange precipitate of cuprous oxide forms.

Transfer to a test tube about 50 mg. of erythromycin glucoheptonate and dissolve it in about 5 ml. of water. Add about 5 ml. of a saturated solution of picric acid, allow to stand for about 10 min., and filter. Wash the precipitate with water and dry in a vacuum desiccator: the picrate formed melts at 168-175° (*Caution! Picrates may be explosive*).

A 2% solution of erythromycin glucoheptonate in water is levorotatory.

Purity Tests: On about 0.5 gm. of erythromycin glucoheptonate, accurately weighed, run a *U. S. P. Karl Fischer test for water:* the amount of moisture does not exceed 5.0%.

Char about 0.5 gm. of erythromycin glucoheptonate, accurately weighed, cool the residue, add 1 ml. of sulfuric acid, heat cautiously until evolution of sulfur trioxide ceases, ignite, cool, and weigh: the residue does not exceed 1.0%.

Assay: (Erythromycin) Transfer to a 100 ml. volumetric flask 32.5 mg. of erythromycin glucoheptonate, accurately weighed, fill to the mark with water, and mix. Transfer to a 500 ml. volumetric flask 2 ml. of the solution and fill to the mark with 0.1 M phosphate buffer, pH 8.0, to obtain the assay preparation containing in each milliliter the equivalent of about 1 mcg. of erythromycin as the glucoheptonate. Proceed as directed in the *U. S. P. erythromycin microbial assay.* The amount of erythromycin activity is not less than 85.0% of the theoretical amount.

Dosage Forms of Erythromycin Glucoheptonate

POWDER. *Identity Tests:* The powder responds to the identity tests for the active ingredient in the monograph for erythromycin glucoheptonate.

Assay: (Erythromycin) Transfer the entire contents of the container to a 100 ml. volumetric flask and add sufficient distilled water to make 100 ml. Mix thoroughly and transfer an aliquot portion, equivalent to 25 mg. of erythromycin, to a second 100 ml. volumetric flask, fill to the mark with water, and mix. Transfer to a 500 ml. volumetric flask 2 ml. of the solution and fill to the mark with 0.1 M phosphate buffer, pH 8.0, to obtain the assay preparation containing in each milliliter the equivalent of about 1 mcg. of erythromycin as the glucoheptonate. Proceed as directed in the *U. S. P. erythromycin microbial assay.* The amount of erythromycin activity is not less than 85.0% of the labeled amount.

Eli Lilly & Company cooperated by furnishing scientific data to aid in developing this monograph.

Erythromycin Stearate.—Erythromycin stearate is the stearate salt of erythromycin, an antibiotic produced by the growth of Streptomyces erythreus Waksman. The chemical structure of erythromycin stearate has not been established.

Physical Properties: Erythromycin stearate is a white or slightly off-white, practically odorless, crystalline powder. It is soluble in alcohol and in ether, and is practically insoluble in water. The pH of a 1% slurry is in the range of 6.0-11.0.

Identity Tests: Transfer to a test tube about 10 mg. of erythromycin stearate and add about 2 ml. of hydrochloric acid: a yellow color appears and changes to a dark greenish yellow.

Transfer to a test tube about 5 mg. of erythromycin stearate and add 5 ml. of sulfuric acid: a red-brown color appears.

Transfer to a 50 ml. glass-stoppered Erlenmeyer flask about 0.5 gm. of erythromycin stearate and suspend it in about 10 ml. of water. Add 15 ml. of a saturated solution of picric acid and shake the mixture for 1 hour on a mechanical shaker. Centrifuge the mixture, decant the supernatant solution, and wash the precipitate twice with water, centrifuging the mixture and decanting the supernatant liquid after each wash. Recrystallize the precipitate from diluted alcohol and dry at 105°: the precipitate melts at 168-172° (*Caution! Picrates may be explosive*).

A 2% solution of erythromycin stearate in alcohol is levorotatory.

Purity Tests: Accurately weigh about 0.5 gm. of erythromycin stearate and determine the water content by the *U. S. P. Karl Fischer method:* the amount of moisture does not exceed 5.0%.

Char about 0.5 gm. of erythromycin stearate, accurately weighed, cool the residue, add 1 ml. of sulfuric acid, heat cautiously until the evolution of sulfur trioxide ceases, ignite, cool, and weigh: the residue does not exceed 2.0%.

Assay: (Erythromycin) The erythromycin used in the preparation of erythromycin stearate, assayed by the microbiological method, contains not less than 85% of the theoretical amount.

Dosage Forms of Erythromycin Stearate

SUSPENSION. *Identity Tests:* Transfer to a 125 ml. separatory funnel an amount of suspension equivalent to about 0.5 gm. of erythromycin. Extract with three 25 ml. portions of chloroform, wash the combined chloroform extracts with 10 ml. of water, and evaporate the chloroform layer to dryness. The residue responds to the identity tests for the active ingredient in the monograph for erythromycin stearate.

Assay: (Erythromycin) Transfer to a 100 ml. volumetric flask an amount of suspension, accurately measured, equivalent to about 25 mg. of erythromycin, add 40 ml. of methanol, mix, fill to the mark with water, and mix again. Transfer to a 500 ml. volumetric flask 2 ml. of the solution and fill to the mark with 0.1 M phosphate buffer, pH 8.0, to obtain the assay preparation containing in each milliliter the equivalent of about 1 mcg. of erythromycin. Proceed as directed in the *U. S. P. erythromycin microbial assay.* The amount of erythromycin is not less than 85.0% of the labeled amount.

TABLETS. *Identity Tests:* Powder about 10 tablets. By trituration extract an amount of powder equivalent to about 0.5 gm. of erythromycin with 50 ml. of chloroform and evaporate the filtered chloroform extract on a steam bath. The residue responds to the identity tests for the active ingredient in the monograph for erythromycin stearate.

Assay: (Erythromycin) Transfer to a 100 ml. volumetric flask an amount of powdered tablets, accurately measured, equivalent to about 25 mg. of erythromycin, add 40 ml. of methanol, mix, fill to the mark with water, and mix again. Filter the suspension through a dry filter paper and discard the first 15 ml. of the filtrate. Transfer to a 500 ml. volumetric flask 2 ml. of the subsequent filtrate, fill to the mark with 0.1 M phosphate buffer, pH 8.0, to obtain an assay preparation containing in each milliliter the equivalent of about 1 mcg. of erythromycin. Proceed as directed in the *U. S. P. erythromycin microbial assay.* The amount of erythromycin is not less than 85.0% of the labeled amount.

Abbott Laboratories cooperated by furnishing scientific data to aid in developing this monograph.

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MODERN ANTIBACTERIAL AGENTS

New antibacterial agents have appeared so fast in the last 20 years that it has been difficult for the average practitioner to keep abreast of developments and to avoid confusion. One of the most troublesome problems is the prophylactic use of such agents. Weinstein [1] has sorted out the indications for such use, the commonest of which is the protection of healthy persons or groups from a specific infection to which they have been exposed or are in danger of being exposed. This has been most successful against beta-hemolytic streptococci and Neisseria gonorrhoeae for which penicillin is best, Neisseria meningitidis for which either penicillin or sulfadiazine is best, and Shigella dysenteriae for which sulfadiazine is best. If the drug of choice is contraindicated or the causative organisms are resistant to it, one of the tetracycline group should be used. Chemoprophylaxis has also been used to prevent secondary infection in a patient acutely ill with a disease for which chemotherapy is not effective, but this has not been generally effective and may even increase the likelihood of complicating bacterial infections with organisms not inhibited by the agent used.

A third common use of chemoprophylaxis is to reduce the risk of infection in patients with chronic disease. This has been most successful in patients with rheumatic fever who appear to be benefited by prolonged treatment with benzathine penicillin. Patients with chronic heart disease may be given prophylactic doses of penicillin for a few days preceding and following the extraction of a tooth. One of the most common uses of chemoprophylaxis is to inhibit the spread of a localized infection in patients who have had accidental or surgical trauma, and it has been commonly used in patients undergoing "clean" operations, especially cataract operations, in which the risk of infection is great. Despite the popularity of this procedure, the results have been negligible in the few controlled series that have been investigated and the risk of superimposed infections is great. In any contemplated use of chemoprophylaxis, it is important to consider only those advantages that are well established and to weigh these against such known dangers as drug allergy, the normal toxicity of the drug to be used, possible disturbances to normal metabolism, and the superimposed infections. Ordinarily use of such agents should not be continued for more than five days.

Hypersensitivity to both sulfonamides and antibiotics has become all too common as a result of widespread exposure. It is estimated that allergy to penicillin is now found in 10% of the population.[2] Deaths from this cause are not uncommon. These drugs are not only used extensively by physicians but also the pharmaceutical companies show an increasing tendency to incorporate them in nose drops, throat sprays, eye drops, troches, chewing gum, and ointments in amounts that are probably ineffective therapeutically but are undoubtedly allergenic.[3] Furthermore, due to the common use of antibiotics in animal husbandry, small amounts are now present in the meat, eggs, milk, and cheese that reach our tables. Because the allergic reaction to these drugs is frequently characterized by fever and rash, it may be difficult to distinguish between the drug reaction and the disease for which it is given. Fortunately in acutely ill patients strong physiological insults may cause the tissues to be unresponsive to allergenic stimuli. An acute infection may cause an increase in adrenocortical activity, thereby suppressing an allergic reaction. If, however, a fever persists when the patient's general condition has improved and the physical signs of his disease have cleared, this is not an indication for increasing the dose of a chemotherapeutic agent but rather a reason to discontinue its use.

There is some disagreement as to whether a physician should ever prescribe a specific drug without laboratory identification of the causative organism. Selection of the best drug to use often depends not only on such an identification but also on tests of the sensitivity of the organism to the drug. The clinician's dilemma is that, if his treatment is to have its greatest effect, it must be given early in the course of the disease, and if he waits for laboratory tests he may lose much valuable time and incur the wrath of the patient or the patient's family. McDermott [4] believes that the only solution at present is for the physician to make a tentative diagnosis based on a careful evaluation of his clinical findings, take speci-

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1. Weinstein, L.: The Chemoprophylaxis of Infection, Ann. Int. Med. 43:287-298 (Aug.) 1955.
2. Yow, E. M.: A Reevaluation of Sulfonamide Therapy, Ann. Int. Med. 43:323-332 (Aug.) 1955.
3. Lowell, F. C.: Allergic Reactions to Sulfonamide and Antibiotic Drugs, Ann. Int. Med. 43:333-344 (Aug.) 1955.
4. Kneeland, Y., Jr.; Barach, A. L.; Habif, D. V.; McDermott, W., and Rose, H. M.: Current Concepts in the Use of Antibiotics: Panel Meeting on Therapeutics, Bull. New York Acad. Med. 31:639-660 (Sept.) 1955.
5. Lepper, M. H.: Microbial Resistance to Antibiotics, Ann. Int. Med. 43:299-315 (Aug.) 1955.

mens for culture before starting treatment, select the drug most likely to benefit the patient if his tentative diagnosis is correct, and give this drug in adequate doses. If laboratory results indicate that his diagnosis was in error, he can change the medication and be no worse off than if he had waited with his hands folded for the laboratory report. McDermott also believes that the results of disk plate sensitivity tests are so often unreliable as to be of doubtful value.

Lepper,[5] in a detailed study of microbial resistance to antibiotics, suggests methods of minimizing the development of such resistance: chemotherapeutic agents may be used in combination; new drugs can be introduced; antibiotics of limited scope should be used and only in minimal effective doses. These and other measures will aid in maintaining the usefulness of many of our most powerful therapeutic agents. With the troublesome problems of hypersensitivity, drug resistance, and superimposed infections, interest in the sulfonamides is being revived.[2] In the period following the introduction of penicillin, new and safer sulfonamides have been synthesized. Most of the serious complications such as hematological disorders were reduced to less than 0.1% by the use of sulfadiazine. More recently sulfisoxazole, which is 10 times as soluble as sulfadiazine, has been introduced. Fortunately, combining sulfonamides produces an additive bacteriostatic effect, but the drugs combined have their independent solubilities in the urinary tract. This reduces the danger of renal tubular irritation and blockage. Because sulfonamides produce less drastic changes in the normal flora of the body than do the antibiotics, their use is attended by less risk of superimposed infections. In many diseases sulfonamides are as effective as antibiotics. In some diseases the combination of an antibiotic and a sulfonamide produces the best results. From these observations it should be abundantly clear that in medicine nothing is static. Research investigators continue to provide us with better means of combatting disease, but the clinician must still bring judgment and skill to bear to obtain the best results and above all to keep these new drugs from falling into disrepute.

E. Roger Samuel, M.D.

THE GENERAL PRACTITIONER'S AWARD

Dr. E. Roger Samuel of Mount Carmel, Pa., was named the General Practitioner of the Year at the opening session of the House of Delegates of the American Medical Association November 29 during the Ninth Clinical Meeting in Boston. A general practitioner for 35 years, the 66-year-old physician was nominated by the Medical Society of the State of Pennsylvania, after original sponsorship by the Northumberland County Medical Society and the Mount Carmel Rotary Club. His nomination carried with it testimonials from patients, colleagues, fraternal and civic groups, and churches.

Dr. Samuel, who practices medicine in the Pennsylvania town where he was born, was chosen for the honor by an unidentified A. M. A. committee from candidates nominated by each of the state medical societies, which in turn received nominations from county medical societies. He has continuously devoted time and effort to public service and has served diligently and enthusiastically in civic and religious groups covering a wide range of interests. A 33rd degree Mason, he has been trustee, treasurer, and Sunday school teacher of the First Methodist Church, president of the Community Concert Association, president of the Northumberland County unit of the American Cancer Society, medical advisor of the tuberculosis and health committee, and member of the board of the Mount Carmel Red Cross chapter and the Mount Carmel Rotary Club. He has served as chairman of the School Boy Patrol of the Mount Carmel Motor Club since it was formed.

Dr. Samuel attended Dickinson College and was graduated from the University of Pennsylvania School of Medicine; then, after a year as pathologist at the Pennsylvania Hospital in Philadelphia, he entered general practice in Mount Carmel. During World War I he served as captain in the Army Medical Corps assigned to the British Expeditionary Forces and was awarded the Purple Heart. He is a charter member and past-commander of the Mount Carmel American Legion post. A member of the Selective Service Board during World War II, he was active in civil defense, establishing first-aid stations throughout the area. He has been president of the Board of Health, Fraternity Club, Kiwanis Club, and president and founder of the Mount Carmel Chamber of Commerce.

Dr. Samuel has been president of his county and state medical societies and formerly was a member of the House of Delegates of the American Medical Association. He also has been president of the staff at the Shamokin State Hospital, compensation doctor for the Jeddo-Highland Coal Company, surgeon for the Lehigh Valley Railroad Company, member of the board of the Medical Service Association of Pennsylvania (Blue Shield), and a member of the American Academy of General Practice, the World Medical Association, and the Association of Railway Surgeons.

MEDICINE AND THE LAW

GROUP MEDICAL AND HOSPITAL SERVICE PLAN: NO VIOLATIONS FOUND

The Supreme Court of California in July, 1954, handed down its decision in *Complete Service Bureau* v. *San Diego County Medical Society*.[1] This case was concerned with the legality of certain aspects of the organization and operation of a "prepaid" group medical and hospital service plan, the Complete Service Bureau (CSB). The San Diego County Medical Society and some 30 of its member physicians had brought action against CSB seeking to enjoin it from certain allegedly unlawful practices in the carrying on of its business. It was alleged that (1) CSB had failed to comply with section 9201 of the California Corporations Code; (2) CSB was engaged in the corporate and lay practice of medicine; (3) the physicians connected with CSB were aiding and abetting the lay practice of medicine; (4) CSB and the physicians connected with it were splitting fees; (5) CSB engaged in intensive solicitation of patients; (6) much of CSB's advertising was misleading; (7) the practices of CSB and the physicians connected with it amounted to unfair competition with respect to the members of the San Diego County Medical Society; and (8) the commercialization of the practice of medicine which is harmful to the public health and welfare, was inherent in the activities of CSB. There was no allegation that the medical services furnished by CSB were in any way inadequate.

The facts as to CSB's formation and operations were not disputed. In 1939, one Parmer and two associates, none of whom was licensed to practice medicine, organized CSB under section 9200 of the California Corporations Code. Section 9200 provides: "A nonprofit corporation may be formed . . . for any lawful purposes which do not contemplate the distribution of gains, profits or dividends to the members thereof and for which individuals lawfully may associate themselves, such as . . . rendering services, subject to laws and regulations applicable to particular classes of nonprofit corporations or lines of activity. . . ." The articles of incorporation provided that CSB's main purposes were the establishment and maintenance of a fund obtained through periodic payments by its members, which fund was to be used to defray the cost of medical services and hospital care to members; to supply or procure at the lowest cost medical, hospital, and other services to the members on a periodic payment plan; and to furnish medical and hospital service to its members without profit to any agency.

Parmer was hired as manager of CSB under a 20 year contract. The rights under this contract were specifically made assignable and inheritable. Parmer was not required to devote all of his time to the job and could engage in any other occupation he chose. The contract provided that Parmer's compensation was to be 10% of the monthly dues paid by the members of CSB. Parmer's average annual income under this contract has been $8,320. Further, he was given under the contract an option to purchase at any time any or all of the real or personal property owned by CSB at its original cost, less depreciation. CSB leased a building in which medical services were to be furnished; under the lease CSB was given an option to purchase. A group of doctors were employed to perform the medical services at the leased building. The doctors were paid approximately 50% of the fees collected by CSB in accordance with a unit system.

At the time of the trial CSB had approximately 10,000 subscribers who paid $2.50 a month. This payment entitled a subscriber to up to 30 days' hospitalization for each sickness or injury, up to $10 toward ambulance service for each sickness or injury, and medical services in accordance with a schedule of fees listed. The subscribers' voting rights were restricted, and no subscriber had ever attended a meeting of CSB. Only once, immediately prior to the trial, had the subscribers been given effective notice of a meeting of CSB.

In 1940, CSB exercised its option and purchased the leased building at a price of $31,000. Parmer and the head doctor of CSB formed Group Property (GP), a stock corporation, in 1946. At that time Parmer exercised his option to purchase CSB's real property at the price of $31,000; the purchase price was paid in GP stock. Parmer then sold the building to GP for $102,500, payable in GP stock. Then Parmer, in his capacity as president of GP, leased the building to himself in his capacity as president of CSB on a month-to-month basis for a rent of 10% of the gross income of CSB. During the two and one-half years preceding the trial, GP received $108,000 from CSB in the form of rent. GP has paid no salaries and declared no dividends; it has spent approximately $100,000 in remodeling and refurnishing the building that it rents to CSB.

The trial court found for CSB on all issues. It took the position that section 9201 of the California Corporations Code provided an alternative, but not mandatory, method of organizing a nonprofit corporation for the purpose of rendering personal service and did not repeal or affect section 9200 of the California Corporations Code in any way. The trial court's conclusion that the specific activities of CSB that were complained of were not unlawful was apparently based on a finding that similar activities were engaged in by the California Physicians Service (CPS), an organization sponsored by the California Medical Association and its constituent county societies.

The district court of appeals for the fourth district reversed the judgment of the trial court.[2] The district court regarded section 9201 as a law applicable to CSB's particular line of activity with which under the terms of section 9200 CSB was required to comply, rather than as an alternative method of organizing a nonprofit corporation for the purpose of rendering personal service. The district court further said that CSB's advertising was illegal and misleading and that there was splitting of fees in actuality if not in form.

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[1] 272 P. (2d) 497 (Calif., 1954).

[2] 260 P. (2d) 1038 (Calif., 1953).

The Supreme Court of California affirmed the judgment of the trial court on all issues. The medical society contended that a nonprofit medical service corporation could now be organized only under section 9201. Section 9201, which was enacted in 1941, provides that "A nonprofit corporation may be formed under this part for the purposes of defraying or assuming the cost of professional services of licentiates under any chapter of Division 2 of the Business and Professions Code or of rendering any such services, but it may not engage directly or indirectly in the performance of the corporate purposes or objects unless all of the following requirements are met: (1) at least one-fourth of all licentiates of the particular profession become members; (2) membership in the corporation and an opportunity to render professional services upon a uniform basis are available to all licensed members of the particular profession; (3) voting by proxy and cumulative voting are prohibited; (4) a certificate is issued to the corporation by the particular professional board whose licentiates have become members, finding compliance with the requirements of subdivisions (1), (2), and (3). Any such nonprofit corporation shall be subject to supervision by the professional board under which its members are licensed and shall also be subject to Section 9505." The Court held that a nonprofit medical service corporation could be formed under either section 9200 or section 9201. It was pointed out that section 9201 did not purport to repeal any part of section 9200 and that the language of section 9201 was permissive rather than mandatory. (In connection with this point, the Court cited *Group Health Association* v. *Moor*.[3] That case has no bearing on the point. The Moor case was concerned with the question of whether the formation of a corporation by a group of individuals, the purpose of which was to contract with groups of doctors for medical services, would constitute the practice of medicine. There was no question in the case of the proper interpretation of any statute providing for the incorporation of a nonprofit medical service corporation.) The Court rejected as dictum the statement in *Maloney* v. *American Independent Medical and Health Association*[4] that corporations such as CSB are also subject to the provisions of section 9201. The Court said that to regard all nonprofit medical service corporations as subject to section 9201 might lead to serious legal difficulties. There are a number of fraternal and beneficial organizations, formed under section 9200 prior to the enactment of section 9201, that have entered into contracts with subscribers and other persons to carry out their purpose of furnishing medical services. (In discussing this point the Court made no mention of *People ex rel. State Board of Medical Examiners* v. *Pacific Health Corporation, Inc.*,[5] wherein it is said, with respect to medical service plans run by fraternal and labor organizations, "But a most obvious and, to us, a fundamental distinction must be made between defendant and these other institutions. In nearly all of them, the medical service is rendered to a limited group as a result of cooperative association through membership in the fraternal or other association, or as a result of employment by some corporation which has an interest in the health of its employees. The public is not solicited to purchase the medical services of a panel of doctors; and the doctors are not employed or used to make profits for stockholders. In almost every case the institution is organized as a nonprofit corporation or association. Such activities are not comparable to those of private corporations operated for profit and, since the principal evils attendant upon corporate practice of medicine spring from the conflict between the professional standards and obligations of the doctors and the profit motive of the corporation employer, it may well be concluded that the objections of policy do not apply to nonprofit institutions.")

If the legislature had intended by enactment of section 9201 to eliminate these preexisting corporations, there would be a question of the impairment of contracts. The Court said that it was unlikely that the legislature was considering fraternal and other mutual nonprofit corporations when it enacted section 9201. In support of this conclusion the Court pointed out that it would be unreasonable to require such groups to include one-fourth of all licentiates as members or to require such limited groups to provide all licensed members of the profession an opportunity to render professional services. The Court further said that if section 9201 should be held to be the only section under which a nonprofit medical service corporation could be formed, there is the possibility that CPS, which is sponsored by the California Medical Association and all of its county medical societies, might exercise a monopoly in the field.

The medical society further contended that, even if a medical service corporation can be formed under section 9200, CSB was engaged in certain activities that were violative of chapter 5 of the California Business and Professions Code and that should therefore be enjoined. It was alleged that CSB was engaged in the corporate practice of medicine. Doctors presently employed by CSB and doctors who had been employed by it in the past testified that at no time had there been any interference with their practice of medicine. The Court regarded this testimony as substantial evidence to support the trial court's finding that only licensed physicians employed by CSB were engaged in the practice of medicine.

It was next alleged that CSB and members of its medical staff were engaged in splitting fees. This allegation was based on: (1) Parmer's contract as manager of CSB; (2) the rental lease between CSB and GP; (3) the fact that the doctors employed by CSB are compensated under the unit system; and (4) the fact that the doctors receive only 50% of the amounts collected by CSB. An expert witness testified that the salary range for a lay manager of a clinic such as that operated by CSB was $6,000-$15,000 per year. Parmer's average annual income, $8,320, was well within that range. In connection with the rental lease the Court pointed out that GP had paid no salaries, had neither declared nor paid any dividends, and that it had spent $100,000 in remodeling and refurnishing the building. It was stated that the unit system was a customary method of payment to members of medical groups. The other 50% of the amounts collected by CSB is used to pay overhead expenses. There was testimony that 50% was a "standard" figure for overhead expenses for medical practice in general and also for group practice. The Court said that these factors constituted substantial evidence to support the trial court's conclusion that there had been no splitting of fees. Judge Edmonds, in a dissenting opinion, questioned the soundness of the majority's conclusion with respect to some of these factors. He stated that, in view of the vague nature of Parmer's duties under his management contract, there is considerable doubt that the amounts paid to him can be regarded as compensation for services actually rendered. He further pointed out that it was immaterial that GP had paid no dividends, because its net worth had increased and Parmer, as controlling stockholder, could declare a dividend at any time he wished. Judge Edmonds concluded by saying, "In any event, it is a novel proposition of law that one who receives funds from an improper source, or gains them in an improper manner, may be excused from legal consequences if he does not take too much."

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[3] 24 F. Supp. 445 (Washington, D. C., 1938).

[4] 259 (2d) 503 (Calif., 1953).

[5] 82 P. (2d) 429 (Calif., 1938).

The Court found that there was substantial evidence to support the trial court's conclusion that none of CSB's advertising was, as the medical society had alleged it to be, false or misleading. The medical society had complained of those advertisements of CSB in which it had referred to its plan as a prepaid medical plan and to its advertisements that said, "Surprise! A 24-Hour Medical-Surgical Hospital Service for Only $2.50 a Month" and "You will be surprised how much medical, surgical and hospital care you can buy for $2.50 a month." The Court said that these advertisements were not misleading because all of CSB's members were advised of the medical fee schedule that was part of their contract and that none of them thought they were going to receive complete medical, surgical, and hospital care by prepaying $2.50 a month. The medical society had also complained of an advertisement, which read, "Your money goes for Medical Care and other Hospital Services exclusively," on the ground that it was false and misleading, since Parmer received a part of the money for his services as manager. The Court said that this would probably have made no difference to the subscribers. In connection with the question of whether the advertisements of CSB were false and misleading, advertisements of CPS were introduced in evidence to show the similarity between the two. The Court took the position that, although common practice is generally reasonable and lawful practice, it is not always so. It regarded the type of advertising used by CPS as merely one factor to be used in determining the legality of CSB's advertising, rather than assigning a conclusive weight to this factor as was apparently done by the trial court.

It was also held by the Court that CSB's advertising did not, as had been alleged by the medical society, violate section 2380.5 of the Business and Professions Code, which provides that "All advertising of the medical business in connection with which the holder of any certificate fails to use his name constitutes unprofessional conduct within the meaning of this section." It was said that this section was not applicable to nonprofit medical groups because they do not hold medical licenses and are not advertising in behalf of any particular doctors. To support this conclusion that the advertising was not in behalf of any particular group of doctors, the Court pointed out that the relation between the physicians and CSB could be terminated on 60 days' notice.

The medical society had alleged that CSB's solicitation of members through hired solicitors violated section 2399 of the Business and Professions Code, which forbids the employment of "cappers" or "steerers" in the procuring of practice for a medical practitioner. The Court said that medical service groups, including CPS, commonly solicit members and that these activities were not intended to be within the scope of the statute. The fact that CSB's staff of doctors is not constant indicates that the members are being solicited for the group rather than for any particular practitioner.

The Court said that there was no evidence in the record to support the medical society's allegation that the activities of CSB constituted unfair competition.

It was said in conclusion that there was sufficient evidence in the record to support the trial court's general conclusion that none of the activities or policies of CSB was harmful or inimical to the public health and welfare and that none of them would lower the standards of the medical profession.

It is difficult to say just what is the significance, with respect to the law relating to corporate practice of medicine, group medical and hospital service plans, and splitting of fees, of the decision in the *Complete Service Bureau* case. The decision can be regarded as nothing more than a statement that there was sufficient evidence to support the trial court's conclusion that no part of CSB's organization or operations was in violation of the existing law; the decision, therefore, made no new law. However, the Supreme Court, in its opinion, cited only a few previous cases, none of which seem particularly applicable to the matter that was before it. The Court did cite *Pacific Employers Insurance Company* v. *Carpenter* [6] in support of the proposition that the professions are not open to commercial exploitation and that it is against public policy to permit a middleman to intervene for profit in establishing the professional relationships between the members of a profession and the members of the public; but, the Court went on to say that ". . . this principle is not contravened by permitting a group of interested persons to form a nonprofit corporation to secure for themselves medical services at a low cost." It might be that the Supreme Court of California regarded any evils of the commercialization of the medical profession that might arise from CSB's methods of operations as being outweighed by the good that it felt resulted from CSB's furnishing of admittedly adequate medical services at a low cost to a large group of persons, who might not otherwise be able to obtain such services.

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6. 52 P (2d) 992 (Calif., 1935).

MEDICAL NEWS

CALIFORNIA

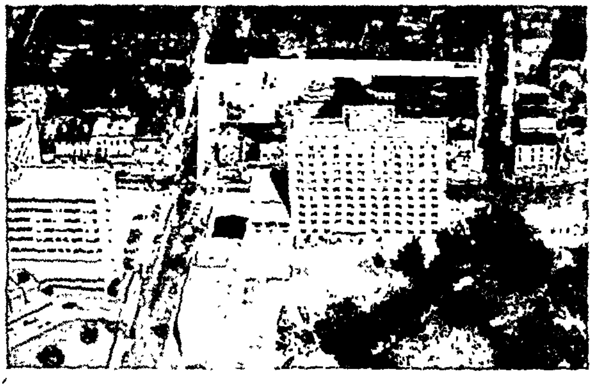
Student Loan Fund.—The Loma Linda Foundation fund of the College of Medical Evangelists recently received $100,000 from a patient at Glendale Sanitarium and Hospital, whose father was a physician. The gift, made in the form of an annuity in appreciation and recognition of the medical care received from hospital personnel, will eventually become available for student loans, which now total about $500,000, including loan funds handled in trust.

Emotional Problems in Office Practice.—The University of California Extension offers a class in treatment of those with emotional problems in office practice on Thursdays, 8-10 p. m., Jan. 5-March 22, 1956, in room 108, Old Religious Conference Building on the Los Angeles campus, with Dr. Frank F. Tallman, professor of psychiatry, as instructor. Enrollment is limited to 25 persons. Application and fee ($50) should be mailed promptly to Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, University of California Medical Center, Los Angeles 24.

Physicians' Art Show.—Coincident with the midwinter medical meeting of the Los Angeles County Medical Association, the Los Angeles Physicians' Art Society will stage its annual exhibition from Dec. 20, 1955, to Jan. 20, 1956, at L. A. C. M. A. headquarters, 1925 Wilshire Blvd. Physician-artists (duly paid members) should send their most recent works (limit three) to the L. A. C. M. A. Auditorium, to arrive not later than 5 p. m., Dec. 16. There will be a hanging charge of $2 each for two pieces submitted; three pieces, $5. Names and media of pieces submitted must be in the hands of Miss Virginia Brown, executive secretary of the society, 1234 N. Vermont Ave., Los Angeles 29, by Dec. 12. A cocktail party and dinner ($3.50) at 6:30 p. m., Dec. 20, will open the exhibition.

CONNECTICUT

Harkness Residential Hall at Yale.—The Edward S. Harkness Memorial Hall, a residential center for medical students, was dedicated Oct. 7 at Yale University in New Haven. Dr. Vernon W. Lippard, dean, Yale University School of Medicine, was presiding officer for the program. The structure, which covers a block in the heart of the Yale-New Haven Medical Center, is named after the late Edward S. Harkness, whose gifts to Yale for new buildings are said to have changed the face of the campus in the 1920's and 1930's. The red-brick building has two wings—one 11 stories high and the other 4 stories, connected by a 2-story structure housing a lounge and a dining hall. The dormitory space includes accommodations for 266 medical students, both men and women; special apartments for married students; a special apartment for the resident faculty member, Dr. Donald P. Shedd, assistant professor of surgery; and a guest suite for visiting lecturers and scientists. Residential facilities include dining rooms, gymnasium, a game and music room, and snack bar.



The L-shaped Edward S. Harkness residential hall occupies a triangular block. The Grace-New Haven Community Hospital is located at the left, across the street.

Yale Appointments in Anesthesiology.—Dr. Nicholas M. Greene, previously associate professor of anesthesia at the University of Rochester School of Medicine and Dentistry and anesthetist-in-chief of Strong Memorial Hospital in Rochester, N. Y., joined the faculty of Yale University School of Medicine, New Haven, July 1, as professor of anesthesiology and lecturer in pharmacology. Dr. Greene will be director of anesthesiology in the Grace-New Haven Community Hospital. He will develop an expanded teaching and investigative program in anesthesiology at Yale, assisted by Dr. Alastair J. Gillies, formerly of Rochester, N. Y., who has been appointed assistant professor of anesthesiology and associate director of anesthesia at the Grace-New Haven Community Hospital. Dr. Gillies' father is professor of anesthesia at Edinburgh University, Scotland.

ILLINOIS

Personal.—Dr. Richard J. Graff, superintendent of Manteno State Hospital, recently received a citizen's award commemorating his 25 years as a physician dedicated to care of the mentally ill. A silver plaque was presented to him during the third annual volunteer award ceremonies at Manteno.

Symposium on Arteriosclerosis.—In cooperation with the Chicago Heart Association, the Aux Plaines branch of the Chicago Medical Society will present a symposium on arteriosclerosis Dec. 16 at the Oak Park Club (Euclid 6-8200), 721 Ontario, Oak Park. Dinner, 7 p. m., will be preceded by a fellowship hour. "Pathogenesis—Epidemiological Evidence" will be considered by Dr. Jeremiah Stamler, Chicago, and "Pathogenesis—Experimental Evidence" by Dr. Ruth Pick, respectively assistant director and research associate, cardiovascular department, Medical Research Institute, Michael Reese Hospital, Chicago. Clinical aspects will be discussed by Dr. Norman B. Roberg, associate professor of medicine, University of Illinois College of Medicine, Chicago. Audience participation will follow. All physicians are welcome.

Chicago

Society News.—The Society of Medical History of Chicago will hold an open meeting at the Institute of Medicine (fourth floor, 86 E. Randolph St.) Dec. 14, 8 p. m. Dr. Lester S. King will present "Similia Similibus" and Dr. Israel Davidsohn, "Medical Caricatures—A Mirror of Medical History." All are welcome.

CIO Health Center.—The Sidney Hillman Health Center, the nation's fourth health center to provide medical care for CIO unionists in the clothing industry was recently dedicated by the CIO Amalgamated Clothing Workers of America. It occupies two floors of the Amalgamated center at 333 S. Ashland Ave. Its staff, headed by Dr. William S. Hoffman, professorial lecturer in medicine at the University of Illinois College of Medicine, will include 30 specialists and a staff of technicians.

The Physician in Dental Diagnosis.—As part of its postgraduate course in diagnosis, roentgenography, and treatment planning, the Northwestern University Dental School will present a lecture, "The Role of the Physician in Diagnosis in Dentistry," by Joseph C. Calandra, Ph.D., professor of pathology, Dec. 14, 9 a. m. "Clinical and Roentgenographic Correlation Between Oral and Systemic Diseases" will be considered by Arthur Elfenbaum, D.D.S., chairman of the department of diagnosis.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

WTTW to Rerun "March of Medicine."—In conjunction with the beginning of its full-time operation, station WTTW will rerun on channel 11 the series of medical documentaries, the March of Medicine, originally produced by Smith, Kline & French Laboratories in cooperation with the American Medical Association. The 10 week series, sponsored by the Chicago Medical Society, will be presented each Wednesday night at 9 p. m., as a public service feature. The first telecast, Dec. 14, will be "We, the Mentally Ill," narrated and enacted by mental patients.

IOWA

Health Forums.—The Scott County Medical Society in conjunction with the Davenport Newspapers, Inc., held a public forum on poliomyelitis Nov. 3 and one on "The Wonder Drugs" Nov. 10 in Davenport. This is the third year that the free public forums have been held.

University News.—Dr. Robert C. Hickey, associate professor of surgery, State University of Iowa College of Medicine, Iowa City, has been named assistant dean for research. He will be responsible for the coordination and administration of more than 200 teaching and research grants and research fellowships. His duties as assistant dean will be in addition to his teaching.——Dr. Iain Maclean Smith, formerly affiliated with the department of pathology and microbiology, Rockefeller Institute for Medical Research, New York, has been appointed assistant professor of internal medicine at the University Hospitals, State University of Iowa, Iowa City. Dr. Smith, a graduate of the University of Glasgow, Scotland, has served at Barnes Hospital, St. Louis, Johns Hopkins Hospital, Baltimore, and Sheffield University, Sheffield, England. Members of the department who have recently been promoted include Dr. James W. Culbertson, from associate professor to professor, and Dr. Bernard I. Lewis, from assistant professor to associate professor.

KENTUCKY

Rural Health Conference.—The 1956 Kentucky State Rural Health Conference will be held at the Kentucky Hotel, Louisville, Jan. 19, 1956, under the sponsorship of the Kentucky Rural Health Council and the Kentucky State Medical Association.

Students Honor Dr. Ackerly.—A group of psychiatry students has honored Dr. S. Spafford Ackerly, Louisville, by establishing the "Ackerly Society of Psychiatric Residents of the University of Louisville School of Medicine." The society gave a dinner on July 12 for Dr. Ackerly, who is chairman of the department of psychiatry at the medical school.

MARYLAND

Appoint Professor of Urology.—The University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, announces the appointment of Dr. John D. Young Jr. as professor of urological surgery to fill the vacancy created by the retirement of Dr. W. Houston Toulson. Dr. Young obtained his medical degree from the University of Maryland in 1941. During World War II he served in the U. S. Army, from which he was discharged with the rank of captain in the medical corps. He has been on the staffs of University Hospital and the Johns Hopkins Hospital, Baltimore.

Award to Dr. Pincoffs.—Dr. Maurice C. Pincoffs, head, department of preventive medicine, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, has received the Alfred Stengel Memorial award from the American College of Physicians. To attain this honor, the candidate "must have displayed an outstanding influence in maintaining and advancing the best standards of medical practice and clinical research in perpetuating the history and traditions of medicine and medical ethics in upholding the dignity and efficiency of internal medicine in its relation to public welfare." Dr. Pincoffs, currently editor of the *Annals of Internal Medicine*, is a past-president of the American College of Physicians.

MICHIGAN

Program on Chronic Disease.—As part of a two day in-service training program on chronic disease for the staff of the Michigan Department of Health and local full-time health officers, the division of tuberculosis and adult health, Michigan Department of Health, will sponsor a dinner meeting at the Hotel Porter, Lansing, Dec. 19, 6:30 p. m. The speaker will be Dr. Cecil G. Sheps, executive director, Beth Israel Hospital, Boston.

NEBRASKA

Director of Psychiatric Research.—Dr. Jackson A. Smith, formerly assistant professor of psychiatry at Harvard Medical School, Boston, and Baylor University College of Medicine, Houston, Texas, has joined the staff of the Nebraska Psychiatric Institute as director of research and will also serve as professor of neurology and psychiatry at the University of Nebraska College of Medicine, Omaha. Dr. Smith will develop and direct a statewide psychiatric research program for which the state legislature has appropriated funds. Research now under way includes the study of geriatric problems and problems of emotionally disturbed children.

NEW YORK

Einstein College Professorial Appointments.—The Albert Einstein College of Medicine of Yeshiva University has announced appointment of the following physicians as professor and chairman of their respective departments: Ernst A. Scharrer (anatomy), Irving London (medicine), Alfred Angrist (pathology), Henry L. Barnett (pediatrics), Henry D. Lauson (physiology), Marcus D. Kogel, dean (preventive and environmental medicine), Milton Rosenbaum (psychiatry), Milton Elkin (radiology), and Leo M. Davidoff (surgery). Drs. John Frosch and Charles B. Ripstein have been appointed professor and executive officer of the departments of psychiatry and surgery, respectively, and Dr. Henry B. Makover, professor of preventive and environmental medicine.

Personal.—Dr. Samuel K. Levy, Brooklyn, has been appointed chief attending pediatrician at the Bushwick Hospital, Brooklyn. He is associate attending pediatrician at the Maimonides Hospital.——Dr. Leo M. Taran has resigned as medical and research director at St. Francis Sanatorium for Cardiac Children, Roslyn, with which he has been affiliated since its founding in February, 1938. Dr. Taran's offices are now located at the Garden City Medical Center, 520 Franklin Ave., Garden City.——Dr. Robert C. Hunt, assistant commissioner for community mental health services, New York State Department of Mental Hygiene, recently conducted a six weeks' study of community mental health activities in Holland and England under a fellowship from the United Nations World Health Organization.

Mental Clinic.—The third of four centralized clinics designed to provide after-care for mental patients in the New York City area has been opened at 150 Hillside Ave., Jamaica, Long Island. The other new clinics are at 105 Schermerhorn St., Brooklyn, and 1910 Arthur Ave., Bronx. An existing clinic in Manhattan is to be expanded and converted to the new system at a later date. Dr. Eugene B. F. Riley, formerly supervising psychiatrist at Creedmoor State Hospital, Queens Village, is psychiatrist in charge at the Queens clinic. The services are available presently only to patients released from Creedmoor State Hospital since Sept. 1, 1955. The program will be expanded as professional workers are available and will later provide treatment services for all persons residing in Queens County who have had psychiatric treatment in the department's institutions. The new after-care clinics replace those formerly conducted by individual state institutions.

Society News.—At the last meeting of the Kings County Radiological Society, Dr. Louis Goldfarb was elected president; Dr. Hyman I. Teperson, vice-president; Dr. Solomon Maranov, secretary; and Dr. Ernest I. Melton, treasurer, all from Brooklyn.——At its meeting Dec. 20 in MacNaughton Auditorium, the Medical Society of the County of Kings will present "The Management of Advanced and Recurrent Carcinoma" by Dr. J. Englebert Dunphy, professor of surgery, Harvard Medical

School, Boston.——The Brooklyn Urological Society will have as speaker (Dec. 13, 9 p. m., in the Kings County Medical Society Building, 1313 Bedford Ave.) Dr. Wyland F. Leadbetter, chief of urology, Massachusetts General Hospital, Boston, whose topic will be "Cystectomy and Urinary Diversion."——Newly elected officers of the Nassau Radiological Society (19 Clinton Rd., Garden City) include: Dr. Herbert R. Zatzkin, Hempstead, president; Dr. Arthur I. Frucht, Hempstead, vice-president; Dr. Frances M. Behrendt, Garden City, secretary; and Dr. John Knapp, Freeport, treasurer.

New York City

Harvey Lecture.—Dr. Karl Meyer, professor of biochemistry, Columbia University College of Physicians and Surgeons, will deliver the fourth Harvey Lecture of the 1955-1956 series at the New York Academy of Medicine Dec. 15 on "The Chemistry of the Mesodermal Ground Substances."

Dr. Bugher Receives Award.—Dr. John C. Bugher, who retired Sept. 30 as director of the division of biology and medicine of the U. S. Atomic Energy Commission, was presented the Atomic Energy Commission Distinguished Service award and the Superior Accomplishment award, the latter carrying a cash award of $2,000. Dr. Bugher has returned to the Rockefeller Foundation, where he is now director of medical education and public health.

Courses on Cardiology.—Dr. Arthur M. Master will conduct a course in elementary electrocardiography, PM 41, Jan. 16-21, 1956, and a course in advanced electrocardiography, PM 42, Jan. 23-28, at Mt. Sinai Hospital. Morning sessions will be held Monday through Saturday from 10 a. m. to 1 p. m.; Monday, Wednesday, and Friday afternoon classes will meet from 2 to 4 p. m.; Tuesday and Thursday afternoon classes from 2 to 5 p. m. Dr. Master will conduct a course on cardiovascular diseases, PM 31, Jan. 30 to Feb. 10, Monday through Friday, 9 a. m. to 12 noon and 1 to 5 p. m.

Health Department Needs Part-Time Pediatricians.—The children's services in the department of health have a few vacancies for part-time physicians with training in pediatrics. Arrangements are generally made for service for five morning sessions a week. Physicians are paid on a per session basis. Before employment, a short orientation and training course is given. Interested physicians are requested to call the health department at WOrth 2-6900 (for work in child health stations, ask for the Bureau of Child Health, Extension 461; for work with school age children, Bureau of School Health, Extension 320; and for work with the Bureau for Handicapped Children, Extension 229).

Dr. McCormack Accepts Hospital Post.—Dr. James E. McCormack, associate dean for graduate studies, Columbia-Presbyterian Medical Center, has been appointed an assistant vice-president of the Presbyterian Hospital, where he will be responsible for public interest and for professional services. A consultant to the Assistant Secretary of Defense and a member of the Civilian Health and Medical Advisory Council, Dr. McCormack was previously associated with the Office of Scientific Research and Development and with the Research and Development Board of the Department of Defense and since 1950 has been executive director of the New York City Medical Advisory Committee to the Selective Service system. He is also chairman of the New York committee on the study of hospital internships and residencies.

Grants in Accident Prevention.—Two two-year grants of $200,000 each have been allocated by the Chrysler Corporation and the Ford Motor Company for the expansion of the Automotive Crash Injury Research program in the department of public health and preventive medicine, Cornell University Medical College. The money will be used to further research in the interest of the traveling public and the automobile industry. The program on causes of injury in automobile accidents has been supported by the Commission on Accidental Trauma of the Armed Forces Epidemiological Board of the U. S. Department of Defense and the U. S. Public Health Service. The major purposes of this research are: (1) to obtain scientifically meaningful information on what happens to the occupants of vehicles at the time of an actual crash on the highway and (2) to see whether there are any definite correlations between particular patterns of injury and vehicular design. An interstate cooperative research program has been established with state medical societies, departments of public health, police and traffic enforcement agencies in North Carolina, Virginia, Maryland, Connecticut, Indiana, Minnesota, Arizona, Vermont, and the city of Minneapolis. Texas was scheduled to join the group in October.

OHIO

Society News.—On Dec. 14 at 8 p. m. the Cincinnati Society of Neurology and Psychiatry will present Dr. Edgar A. Bering Jr., director, Neurosurgical Research Laboratory, Children's Medical Center, Boston, who will consider the physiology of the cerebral spinal fluid.

Personal.—At Camp Ho Mita Koda in Geauga County, Dr. Henry J. John, Cleveland, was presented with a plaque honoring his 25 years as founder and president of the camp. Groups of 60 diabetic children at a time attend the camp in each of two month-long sessions.——Dr. Howard P. Taylor has been appointed to take charge of the new obstetrical department of the Cleveland Clinic, which will include on its staff Drs. Albert C. Lammert and James S. Krieger, of Cleveland.——Dr. Albert B. Sabin, professor of research pediatrics, University of Cincinnati College of Medicine, was recently invited to lecture at the universities of Lisbon and Oporto in Portugal. He planned to lecture also in France, Sweden, England, and Ireland.

TEXAS

Pediatric Consultant Needed.—The merit system council for the Texas State Department of Health announces an examination for a senior pediatric consultant (salary range, $660-$810; minimum qualifications: (1) M.D. degree, (2) one year's internship in an approved hospital, (3) three years' experience in pediatrics including at least one year's residency in pediatrics, and (4) licensure to practice medicine in Texas. For application write: Merit System Council, 814 Littlefield Bldg., Austin.

Cancer Fund.—Mrs. Mildred Didrikson Zaharias, recently hospitalized for the treatment of cancer, has established the Babe Didrikson Zaharias fund, with offices at University Station, Galveston. The purpose of the fund is not to support research but to make available basic materials and technical personnel necessary for the efficient operation of tumor clinics and for the purchase of equipment necessary in the treatment of malignant diseases. Dr. Hyman W. Paley, Galveston, executive secretary of the fund, announces that, although it will be several months before the fund is in a position to process them, applications will be received at the office of the fund in Galveston.

VIRGINIA

Oto-Ophthalmologists on Cruise.—The Virginia Society of Ophthalmology and Otolaryngology is sponsoring a convention cruise to Havana and Nassau on May 26 to June 2, 1956. Sailing from and returning to Norfolk, the "Queen of Bermuda" will serve as the hotel for the trip. Fare for seven days will be $165 and up per person. Reservations may be made with the United States Travel Agency, Inc., Washington, D. C. Dr. Carl C. Cooley, Medical Arts Building, Norfolk, is publicity chairman for the cruise.

WASHINGTON

Fellowships in Pediatric Cardiology.—One or two fellowships in pediatric cardiology will be available beginning July, 1956, at the Children's Orthopedic Hospital, Seattle. Training will be in conjunction with the department of pediatric cardiology, University of Washington School of Medicine, Seattle. The salary is open. Applicants should have a minimum of two years in pediatrics. Direct correspondence to Dr. Robert A. Tidwell, the Children's Orthopedic Hospital, 4800 Sand Point Way, Seattle 5.

WEST VIRGINIA

Society News.—Newly elected officers of the West Virginia Tuberculosis and Health Association include: Dr. Harold H. Howell, Madison, president (reelected); Mr. Oscar Andre, Clarksburg, vice-president; and Mrs. W. H. Levell, Oak Hill, secretary.——Dr. James P. McMullen, Wellsburg, president, West Virginia State Medical Association, has appointed a committee to confer with a similar committee from the West Virginia Hospital Association in preparing for the medical licensing board a "statement of principles and procedures to comply with the law in the best interests of the public concerning the legality of certain policies employed by hospitals in the collection of medical and hospital fees." The members of the committee from the medical association are Drs. Thomas G. Reed, Charleston; Charles E. Watkins, Oak Hill; and Delivan A. MacGregor, Wheeling.

New Health Center in Huntington.—Dr. Leonard A. Scheele, Washington, D. C., surgeon general of the U. S. Public Health Service, will be the speaker at 8 p. m., Dec. 14, at dedicatory ceremonies for the new health center in Huntington. His address will be delivered at the Huntington Central High School. Open house at the health center, 2-5 p. m., will precede the dedicatory exercises. Building of the new health center at 1336 16th St. was begun in September, 1954. Construction costs totaled more than $250,000. Matching funds for use with a Hill-Burton allocation were provided by the Cabell County court, the city of Huntington, the Junior League, and the Huntington Heart Association. The large one-story building will house the combined health department, formerly quartered in both the Court House and the City Building, the Cancer Information Center, the Huntington Heart Association, the Children's Clinic, and the Baby Clinic.

Personal.—Dr. Ralph H. Zemer, clinical director of the Huntington State Hospital, has been named superintendent of the West Virginia Training School at St. Marys to succeed Dr. Russell L. Heinlein, who resigned to enter private psychiatric practice in Parkersburg.——The following doctors were recently elected to honorary life membership in the West Virginia State Medical Association: Guy H. Michael, Parsons; Harry S. Keister, Fairmont; William A. Adams, Parkersburg; Stephen W. Bull, Spencer; Ludwig Frank, London, England; and Ray Kessel, Ripley.——Dr. and Mrs. Karl J. Myers Jr., Philippi, have enlisted for a three year period as missionaries to Nigeria, West Africa. Mrs. Myers is the former Mary Elizabeth Lawton, graduate of the Woman's Medical College of Pennsylvania, Philadelphia. Dr. Myers and his family will attend language school at Oyo, before reporting for duty at the 70-bed Baptist Hospital at Ogbomosho.——At a technical lecture sponsored by Charleston General Hospital, Dr. Arthur A. Shawkey, first Charleston physician to practice pediatrics, received from members of the Kanawha Medical Society an engraved plaque in recognition of his 55th year as a practitioner in that city. Dr. Shawkey has served as president of the Kanawha Medical Society and has held office in the West Virginia State Medical Association. The speaker was Dr. Harry C. Shirkey of Cincinnati, who presented "Childhood Diseases."——Dr. Robert W. Love, Moorefield, who has served Hardy County for 52 years, recently announced his retirement from practice. Dr. Love spent two years with the Gran Chaco Indians of Paraguay, South America, as a medical missionary, before coming to Moorefield. He has been an elder in the Presbyterian church for 53 years, a member of the school board, and has served as head of the Red Cross, president of the chamber of commerce, a member of the draft board during World War I, and an examiner during World War II. He is a past-president of the Potomac Valley Medical Association and has been a member of the house of delegates of the West Virginia State Medical Association.

WISCONSIN

Survey of Epilepsy.—A statewide survey of the epilepsy problem was initiated this fall by the rehabilitation division of the state board of vocational and adult education. Made possible by funds from the Wisconsin Epilepsy League and the Department of Health, Education, and Welfare, the study will verify the number of epileptics in Wisconsin, now estimated at 14,000. A study of employer acceptance of the epileptic will be made to ascertain attitudes and beliefs that limit job opportunities.

University News.—Marquette University School of Medicine, Milwaukee, has reorganized its cardiopulmonary laboratory at the Milwaukee County Emergency Hospital. The laboratory specializes in the cardiac catheterization technique and in the study of pulmonary function. Dr. John H. Huston is physician in charge, and physicians from the departments of pediatrics and surgery have been added to the group of heart specialists at the laboratory. The laboratory serves as a diagnostic and research center for the cardiovascular division and offers educational opportunities for young physicians, medical students, and nurses.

GENERAL

Casselberry Prize.—The American Laryngological Society announces that, a sufficient sum having accrued from the Casselberry fund (for encouraging advancement in the art and science of laryngology and rhinology), this sum is now available, in part or as a whole, for a prize award. Theses must be in the hands of the secretary, Dr. Harry P. Schenck, 326 S. 19th St., Philadelphia, before March 1, 1956.

Cerebral Palsy Foundation.—To accelerate the research attack on cerebral palsy, the United Cerebral Palsy Research and Educational Foundation was recently established by United Cerebral Palsy and a group of industrialists. The foundation will seek gifts from industry, corporations, and foundations to be added to funds set aside for research and training by United Cerebral Palsy and its nationwide network of affiliates, each of which allocates a percentage of contributions for the national program.

Geriatrics Awards.—The Ciba Foundation for the Promotion of International Cooperation in Medical and Chemical Research, 41 Portland Pl., London, W. 1, invites papers on experimental research into basic problems of aging. Five awards, of an average value of £300 each (about $840), are available for the period 1955-1956. Entries must be received by G. E. W. Wolstenholme, director, not later than Feb. 10, 1956. The work submitted should not have been published before July 31, 1955. Papers should not be more than 7,000 words in length, and a summary in English not exceeding in words 3% of the length of the paper must be attached.

Literature on Psoriasis Requested.—The Biological Sciences Foundation, a nonprofit association at the Hillyard House, 1011 New Hampshire Ave., N. W., Washington 7, D. C., which is compiling a comprehensive bibliography on psoriasis (available during the latter part of this year, without charge to members of the medical profession), is interested in receiving communications regarding unpublished papers and also reprints of papers for its files. The foundation's recent conference on psoriasis at the New York Academy was attended by faculty members from the University of Michigan Medical School, Ann Arbor, Harvard Medical School, Boston, Columbia University College of Physicians and Surgeons, New York, and some 20 other scientists who had done work on psoriasis.

Publications on Rheumatic Fever.—The Helen Hay Whitney Foundation, 525 E. 68th St., New York 21, has announced the compilation of the following publications in the field of rheumatic fever and rheumatic heart disease: (1) a directory of facilities for care of patients with rheumatic fever and rheumatic disease (first issued by the foundation in December, 1954, the directory went into a second edition in April, 1955); (2) bibliographies on various aspects of rheumatic fever, for the use of professional workers in the field; and (3) a list of publications on rheumatic fever for lay persons, compiled in response to requests from physicians for such material and intended to save the physician's time in selecting suitable literature for education of the patient's family.

Nominations Invited for Hunter Award.—The American Therapeutic Society, which annually presents the Oscar B. Hunter Memorial award in honor of its late secretary. Dr. Oscar B.

Hunter of Washington, D. C., invites nominations for the 1956 award. The award, made in recognition of an outstanding contribution or series of contributions to therapy by an individual or a team of workers, seeks to bring recognition to those who have not received distinguished awards for their work. The term "therapy" is used in a broad sense, to include the use of any drugs, procedure, or device of benefit in the treatment of patients. The award was this year presented to Dr. Jonas E. Salk, who spoke at the 56th annual meeting of the American Therapeutic Society at Atlantic City, N. J., June 4. The deadline for receiving nominations for the 1956 award is Feb. 1, 1956. Nominations may be sent to Dr. Harry E. Ungerleider, Chairman, Oscar B. Hunter Memorial Award Committee, 393 Seventh Ave., New York 1.

Indian Health Service.—According to the U. S. Department of Health, Education, and Welfare, 30 Indian youths from 12 states have entered training at Phoenix, Ariz., to aid in sanitation work among their people. The course is part of a program to improve health conditions among the American Indians and Alaskan natives. After six weeks of intensive training in sanitation and hygiene, the Indians will be assigned to assist Public Health Service sanitary engineers on Indian reservations in Arizona, Colorado, Idaho, Minnesota, Montana, New Mexico, North Carolina, North Dakota, Oregon, South Dakota, Wisconsin, and Washington. The training program, operated with the cooperation of the Arizona State Health Department, is financed through funds appropriated to HEW for public health and medical services for the Indians. Dr. James R. Shaw, head of the Indian health program in the Public Health Service, states, "The Indian people have 8 times more typhoid, 25 times more infectious hepatitis, and 22 times more dysentery than prevails among the general population. These conditions are due in large measure to the fact that many Indians have only polluted water to drink and are without adequate sanitary and sewage disposal facilities." A similar course for native sanitarian aides in Alaskan villages was scheduled to start at Nome Oct. 17.

Society News.—Dr. Emma S. Moss, New Orleans, was recently installed as president of the **American Society of Clinical Pathologists**; Dr. John L. Goforth, Dallas, Texas, was made president-elect. The 1956 convention will be held in Chicago. ——At the annual meeting of the **American Association of Obstetricians and Gynecologists** the following officers were elected: Dr. Lawrence M. Randall, Rochester, Minn., president; Dr. F. Bayard Carter, Durham, N. C., president-elect; Dr. Raymond A. Gillis, Pittsburgh, vice-president; Dr. Ward F. Seeley, Detroit, treasurer; Dr. Frank R. Lock, Winston-Salem, N. C., secretary; and Dr. E. Stewart Taylor, Denver, assistant secretary. The 1956 annual meeting will be held at the Homestead, Hot Springs, Va., Sept. 6-8.——Newly elected officers of the **Rocky Mountain Radiological Society** include: Dr. Maurice D. Frazer, Lincoln, president; Dr. John S. Bouslog, Denver, president-elect; Dr. Capres S. Hatchett Jr., Amarillo, Texas, first vice-president; Dr. Ralph C. Moore, Omaha, second vice-president; and Dr. John H. Freed, Denver, secretary-treasurer. The next meeting of the society will be held at the Shirley-Savoy Hotel, Denver, Aug. 16-18, 1956.——Newly elected officers of the **Association of Life Insurance Medical Directors** include: Dr. Ralph R. Simmons, Des Moines, Iowa, president; Dr. Edson E. Getman, New York, president-elect; Dr. Norman J. Barker, Hartford, Conn., vice-president; Dr. Henry B. Kirkland, Newark, N. J., secretary; and Dr. J. Grant Irving, Hartford, Conn., treasurer.——The **American Academy of Ophthalmology and Otolaryngology** recently chose Dr. Erling W. Hansen, Minneapolis, president-elect; Drs. M. Hayward Post, St. Louis, Henry L. Williams, Rochester, Minn., and Walter E. Atkinson, Watertown, N. Y., vice-presidents; and Dr. William L. Benedict, Rochester, Minn., executive secretary (reelected). Dr. Albert C. Furstenberg, Ann Arbor, Mich., is president.

LATIN AMERICA

Ophthalmologic Congress in Chile.—The fifth Pan American Congress of Ophthalmology will be held in Santiago, Chile, Jan. 9-14, 1956, under the auspices of the Pan American Association of Ophthalmology, of which Dr. Moacyr E. Alvaro, São Paulo, Brazil, is president. Dr. Cristobal Espildora Luque of Santiago will be president of the congress. Symposiums will be offered on collagen diseases, glaucoma, infantile glaucoma, secondary glaucoma, detachment of the retina, psychosomatic ophthalmology, tropical diseases, physiopathology and surgery of the crystalline lens, plastic surgery, visual fields and neuro-ophthalmology, and intraocular tumors. Symposium participants from the United States will include: Drs. John M. McLean, Frank H. Constantine, and Algernon B. Reese, New York; A. Edward Maumenee, San Francisco; Lorenz E. Zimmerman, Washington, D. C.; Irving H. Leopold and P. Robb McDonald, Philadelphia; William L. Benedict, Rochester, Minn.; Peter C. Kronfeld, Derrick T. Vail, and David Shoch, Chicago; Elmer J. Ballintine and Lorand V. Johnson, Cleveland; H. Saul Sugar, Detroit; Charles L. Schepens and L. Harrell Pierce, Boston; Harold F. Falls, Ann Arbor, Mich.; Robison D. Harley, Atlantic City, N. J.; and Theodore F. Schlaegel Jr., Indianapolis.

FOREIGN

International Meeting on Librarianship.—At its meeting in Brussels, Belgium, Sept. 10, the International Congress of Libraries and Documentation Centres confirmed the wish, expressed at the first international congress of medical librarians (London, 1953), that an international association of medical libraries and documentation centers be created as soon as possible. To this end, the congress requests that the national associations of librarians and documentalists create medical sections and establish close cooperation with the medical profession for the development and coordination of their common interests.

Electron Microscopes for Neurological Research.—Three RCA electron microscopes were recently purchased by the new Institute for Neurology and Brain Research, Caracas, Venezuela, of which Dr. H. Fernandez-Moran is director. The microscopes will be used in research studies. The institute's projected electron microscopy will utilize the Ultramicrotome, developed recently by Dr. Fernandez-Moran which, using a diamond knife, produces ultrathin serial sections of biological tissue, bone, metal, crystal, and other hard materials.

Improved Health in Western Europe.—According to the Metropolitan Life Insurance Company, western Europe's general health, as gauged by prevailing mortality and morbidity conditions as well as by life expectancy, is better than ever, despite the relatively short period that has elapsed since the widespread privation of food, clothing, shelter, and medical services during *World War II. Each of the countries studied established a new* minimum death rate during the postwar period: the death rate in France fell from 13.5 per 1,000 in 1946 to 11.9 in 1954, as compared with 15 per 1,000 in the immediate prewar period; in Italy the death rate was reduced from 12.1 to 9.0 per 1,000 between 1946 and 1954, which compared with an average of about 14 per 1,000 in 1937-1939; and new low death rates were cited for Austria, Belgium, Denmark, western Germany, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, England and Wales, and Finland. Many of these countries also reported new records for life expectancy. The gains are attributed mainly to such planned activities as the restoration, soon after the war, of medical, hospital, and public health services and the subsequent expansion and improvement of these services. Wide use of the recent advances in medicine, including the antibiotics and other drugs, and a greatly increased food supply, which has raised the nutritional level of the population, also have been important factors.

CORRECTIONS

Studies with Glucagon.—In the article entitled "Studies with Glucagon in Patients with Insulin Sensitivity" in THE JOURNAL, Nov. 12, 1955, in the legend to figure 4 on page 1100 the word "glucagon" appears five times and only in the first line of the legend is it properly used. The last four times in this legend the word "glucagon" should have been "insulin."

Cost of British Health Service.—In the letter from England entitled "Nation's Health" in THE JOURNAL, Nov. 19, 1955, page 1231, the approximate per capita cost of the National Health Service should have been $31.70 instead of $317.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

1957 Clinical Meeting, Philadelphia, Dec. 3-6.

Annual Congress on Industrial Health, Sheraton-Cadillac Hotel, Detroit, Jan. 25-24. Mr. Clark D. Bridges, 535 N. Dearborn St., Chicago 10, Acting Secretary.

American Academy of Obstetrics and Gynecology, Conrad Hilton Hotel, Chicago, Dec. 13. Dr. C. Paul Hodgkinson, 116 South Michigan Blvd., Chicago, Secretary.

American Academy of Orthopaedic Surgeons, Palmer House, Chicago, Jan. 28-Feb. 2. Dr. John R. Norcross, 122 South Michigan Blvd., Chicago 3, Secretary.

American Society for Surgery of the Hand, Chicago, Jan. 27. Dr. George V. Webster, 1145 East Green St., Pasadena 1, Calif., Secretary.

Eastern Section, American Laryngological, Rhinological and Otological Society, Boston, Jan. 13. Dr. John A. Murtagh, Dartmouth College, Hanover, N. H., Vice President.

Los Angeles Midwinter Medical Convention, Biltmore Hotel, Los Angeles, Jan. 3-5. Dr. Paul D. Foster, 1925 Wilshire Blvd., Los Angeles 58, General Chairman.

Middle Section, American Laryngological, Rhinological and Otological Society, Netherland Plaza, Cincinnati, Jan. 16. Dr. William H. Craddock, 2328 Auburn Ave., Cincinnati 19, Vice President.

Neurosurgical Society of America, Hotel Key Biscayne, Key Biscayne, Miami, Fla., Jan. 18-21. Dr. Lester A. Mount, 700 West 168th St., New York 32, Secretary.

Radiological Society of North America, Palmer House, Chicago, Dec. 11-16. Dr. Donald S. Childs, 713 E. Genesee St., Syracuse 2, N. Y. Secretary.

Regional Meetings, American College of Physicians:

Winston-Salem, N. C., Dec. 8. Dr. Elbert Persons, Duke Hospital, Durham, N. C., Governor.

Shreveport, La., Jan. 14. Dr. M. D. Hargrove, 803 Jordan St., Shreveport, La., Governor.

Philadelphia, Jan. 20. Dr. Thomas M. McMillan, 330 South 9th St., Philadelphia 7, Governor.

Saskatoon, Sask., Feb. 3-4. Dr. C. H. A. Walton, Winnipeg Clinic, Winnipeg, Man., Canada, Governor.

Sectional Meetings, American College of Surgeons:

Jacksonville, Fla., Hotel George Washington, Jan. 16-18. Dr. Kenneth A. Morris, 2522 Oak St., Jacksonville 4, Fla., Chairman.

South Atlantic Association of Obstetricians and Gynecologists, Hollywood Beach Hotel, Hollywood, Fla., Jan. 28-Feb. 1. Dr. C. H. Mauzy, Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

Southern Section, American Federation for Clinical Research, Jung Hotel, New Orleans, Jan. 20. Dr. John H. Moyer, 1200 M.D. Anderson Blvd., Houston, Tex., Secretary.

Southern Section, American Laryngological, Rhinological and Otological Society, The Shamrock, Houston, Texas, Jan. 27-28. Dr. J. M. Robison, 1304 Walker Ave., Houston 2, Texas, Chairman.

Western Section, *American Federation for Clinical Research*, La Playa Hotel and Golden Bough Theater, Carmel, Calif., Jan. 25. Dr. B. H. Scribner, Veterans Administration Hospital, Seattle 8, Washington, Secretary.

Western Section, American Laryngological, Rhinological and Otological Society, County Medical Society Bldg., San Francisco, Jan. 21. Dr. David D. DeWeese, 1216 S.W. Yamhill St., Portland, Ore., Vice President.

Western Society for Clinical Research, Carmel-by-the-Sea, Calif., Jan. 27-28. Dr. Arthur J. Seaman, *University of Oregon Medical School*, Portland 1, Ore., Secretary.

FOREIGN AND INTERNATIONAL

All India Medical Conference, Jaipur, India, Dec. 26-28. Dr. B. N. Consul, Association Bldg., S.M.S. Hospital Premises, Jaipur, India, Organizing Secretary.

Canadian Medical Association, Quebec, P. Q., *Canada, June 10-14, 1956.* Dr. Arthur D. Kelly, 150 St. George St., Toronto 5, Ont., Canada, Secretary.

Conference of International Union for Health Education of the Public, Rome, Italy, April 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1er, France, Secretary-General.

Congress of International Anesthesia Research Society, Miami Beach, Fla., U.S.A., April 9-12, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, *Spain, Secretary-General.*

Congress of International Society of Hematology, Hotel Somerset, Boston, Mass., U.S.A., Aug. 27-Sept. 1, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, Sept. 12-15, 1956. Prof. Umberto Serafini, Instituto de Patologia Medica, Viale Morgagni, Florence, Italy, Secretary-General.

European Congress of Cardiology, Stockholm, Sweden, Sept. 10-14, 1956. Dr. Karl Erik Grewin, Sodersjukhuset, Stockholm, Sweden, General Secretary.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May, 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik, Hamburg-Eppendorf, Germany.

Inter-American Congress of Cardiology, Havana, Cuba, Nov. 4-10, 1956. For information address: Dr. Ramon Aixala, Apartado 2108, Havana, Cuba.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Congress Against Alcoholism, Istanbul, Turkey, Sept. 10-15, 1956. For information address: International contre l'Alcoolisme, Case Gare 49, Lausanne, Switzerland.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. *Fenton, National Research Council, Division of Anthropology and* Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress on Diseases of the Chest, Cologne, Germany, Aug. 19-23, 1956. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, U. S. A., Executive Director.

International Congress of Entomology, Montreal, Canada, Aug. 17-25, 1956. Mr. J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ont., Canada, Secretary.

International Congress of Gastroenterology, London, England, July 18-21, 1956. Mr. Hermon Taylor, London Hospital, White Chapel, London E.1, England, Honorable Secretary.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Human Genetics, Copenhagen, Denmark, Aug. 1-6, 1956. For information address: The University Institute for *Human Genetics, Tagensvej 14, Copenhagen N, Denmark.*

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Palmer House, Chicago, Illinois, U. S. A., Sept. 9-13, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Dr. Valente, 41 Avenue Verdi, Montecatini Terme, Italy, Secretary-General.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Physiopathology of Animal Reproduction and Artificial Insemination, Cambridge, England, June 25-29, 1956. For information address: Dr. Joseph Edwards, Production Division, Milk Marketing Board, Thames Ditton, Surrey, England.

International Congress of Radiology, Mexico, D. F., *Mexico, July 22-28*, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, *Mexico, Secretary General.*

International Congress of World Confederation for Physical Therapy, Hotel Statler, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International Genetics Symposium, Tokyo and Kyoto, Japan, Sept. 6-12, 1956. For information address: Secretary, International Genetics Symposium, Science Council of Japan, Ueno Park, Tokyo, Japan.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

Latin American Congress of Pathology, Mexico, D. F., Mexico, Dec. 11-17. For information address: Laboratorio de Anatomia Patologica, Instituto N. de Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F., Mexico.

Latin American Congress of Physical Medicine, San Juan, Puerto Rico and Curacao, N.W.1., Jan. 29-Feb. 8, 1956. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York 21, New York, U. S. A., Executive Director.

Medical Women's International Association, Extraordinary General Assembly, Burgenstock, Nidwalden, Switzerland, Sept. 21-23, 1956. Dr. Janet Aitken, 30a Acacia Road, London N.W. 1, England, Secretary.

National Congress of Pediatrics, Cuidad Universitaria, Mexico D.F., Mexico, May 1-5, 1956. Dr. Ignacio Avila Cisneros, Calzada de Madereros No. 240, Mexico 18, D.F., Mexico, Coordinator.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P. O Box 672, Cairns, N.Q., Australia, Secretary.

Pan-American Academy of General Practice, San Juan, Puerto Rico and Curacao, N.W.1., Jan. 29-Feb. 8, 1956. Dr. Arturo Martinez, 54 East 72d St., New York 21, New York, U. S. A., Secretary.

Pan American Congress of Gastroenterology, Havana, Cuba, Jan. 20-27, 1956. For information address: Dr. Norberto M. Stapler, 1267 J. E. Uriburu, Buenos Aires, Argentine, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, San Juan, Puerto Rico, April 8-12, 1956. Dr. C. E. Munoz MacCormick, Apartado 9111, Santurce 29, Puerto Rico, Secretary General.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

World Medical Association, Havana, Cuba, Oct. 9-15, 1956. Dr. Louis H. Bauer, 345 East 46th St., New York 17, New York, U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

American Board of Dermatology and Syphilology. *Written.* Various centers, July 26. *Oral.* St. Louis, Oct. 12-15. Sec., Dr. B. M. Kesten, One Haven Ave, New York 32.

American Board of Internal Medicine: *Written.* Oct. 15, 1956. Final date for filing application is May 1. *Oral Examinations in 1956.* New Orleans, Feb. 7-10; Los Angeles, April 12-14; Chicago, June 7-9. Final date for filing application for these three oral examinations is Jan. 3. New York City, Sept. 21-25. Final date for filing application is April 1. Exec. Sec., Dr. William A. Werrell, 1 West Main St., Madison 3, Wis.

American Board of Obstetrics and Gynecology: *Written Examination and submission of Case Reports. Part I.* Various locations in United States and Canada, and military centers outside of the Continental United States, Feb. 3, 1956. Final date for filing application was Oct. 1. *Oral and Pathological Examinations. Part II.* Chicago, May 11-20, 1956. Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: *Written.* January 24-26, 1956. *Practical Examination.* San Francisco, June 18-21, St. Louis, Oct. 20-25. Applications for 1957 written examination must be filed before July 1, 1956. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

American Board of Orthopaedic Surgery: *Oral.* Jan. 26-27. Final date for filing application was Aug. 15. *Part I. Oral and written.* Various centers, April 1956. Final date for filing application is Nov. 30. Sec., Dr. Harold A. Sofield, 116 South Michigan Ave., Chicago 3.

American Board of Otolaryngology. *Oral.* Montreal, Canada, May 6-10. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

American Board of Physical Medicine and Rehabilitation. *Parts I and II.* Chicago, June 16-17. Sec., Dr. Earl C. Elkins, 200 First St., S. W., Rochester, Minn.

American Board of Plastic Surgery. *Entire Examination.* Buffalo, May 13-15. Final date for filing case reports is Jan. 1. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

American Board of Psychiatry and Neurology: New York City, December, Philadelphia, April 16-18, 1956. Sec., Dr. David A. Boyd, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: Deadline for filing applications for the Spring 1956 examination is Jan. 1. Those candidates who will complete their training by June 30, will be eligible to appear at this examination. Sec., Dr. B. R. Kirklin, Kahler Hotel Bldg., Rochester, Minn.

American Board of Surgery: *Part I.* Centers throughout the United States, in Europe and in the Far East, March 28. Closing date for the March examination was December 1. *Part II.* St. Louis, Dec. 12-13; New Orleans, Jan 16-17; Los Angeles, Feb. 13-14; San Francisco, Feb. 16-17; Durham, March 12-13; Boston, May 14-15 and Philadelphia, June 4-5. Sec., Dr. John B. Flick, 255 S. Fifteenth St., Philadelphia 2.

Board of Thoracic Surgery. *Written.* February 1956. Closing date for filing application was Dec. 1. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2, Mich.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of The Journal. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, Dec. 19

NBC-TV, 11 a. m. to 12 noon EST. "Medical and Health News with Howard Whitman," a segment of the "Home" show.

NBC-TV, 9 p. m. EST. "Medic" repeats "Red Christmas," the story of a Christmas office party that leads to a serious automobile accident.

ABC-TV, 9:30 p. m. EST. "Medical Horizons" goes to New York Hospital, Cornell University, for a report on the four functions of a hospital nurse: care of the sick, patient education, training the student nurse, and public health. Presented in cooperation with the American Medical Association.

Tuesday, Dec. 20

NBC-TV, 10:30 p. m. EST. "Big Town" features an interview with Gen. Omar Bradley on what business and industry can do to help solve the problem of the physically handicapped.

MAGAZINES

The American Weekly, Dec. 11, 1955

"Hepatitis," by William Engle

"Medical scientists in great research centers today are working in two special ways to solve the mystery of viruses such as that of infectious hepatitis. One of their aims is to perfect vaccines against virus diseases or synthetic antibodies to attack the viruses."

Collier's, Dec. 9, 1955

". . . 65 and Over"

A preview look at a survey on "Economic Needs of Older People," to be published in January by the Twentieth Century Fund. In answering the question "How Is Their Health?" the article says: "From one tenth to one third of all Americans sixty-five or older are chronically ill, and most persons over sixty have some more-or-less permanent disability or disease."

Coronet, December, 1955

"Dear Doctor . . ."

Contains extracts from a new book with that title, which reproduces "unintentionally funny letters" received by doctors.

GOVERNMENT SERVICES

ARMY

Reserve Participation Possible Prior to Doctor's Active Duty.—Seniors in approved American medical schools planning to enter the Army Reserve Medical Corps after graduation next June can begin earning reserve credits at once if they accept their commissions early this winter. Col. Joseph H. McNinch, chief, personnel division, surgeon general's office, said, "With the emphasis being placed now on Reserve service in today's defense blueprints, this is an important consideration the prospective physician may overlook if he postpones sending in his completed application form to the proper Army officials."

These application forms concern participation in the armed forces reserve medical officer commissioning and residency consideration program now in operation. Under this program, evolved by the Department of Defense and the Selective Service System to insure the continuing supply of properly trained doctors for the nation, the medical senior may combine his military obligation and his intern and residency training. He may have up to three years in residency instruction in the medical specialties needed to safeguard the health of the fighting man.

"Processing of commissions in the Medical Corps, Army Reserve, requires a minimum of two months and in some instances, a longer period," said Colonel McNinch. "Consequently, the sooner the senior or the intern gets his papers in . . ., the earlier he will eliminate any uncertainty about his future plans for military duty and the possibility of any interference with his professional progress. It is possible that the senior who waits too long to file his acceptance of an appointment may have to serve on enlisted status until his commission papers are processed."

Col. James H. Kidder, special assistant to the surgeon general for reserve forces, said, "The many advantages of this fine program stem from the opportunity it offers the senior medical student to know reasonably well in advance how he is going to fit his plans for medical training and practice into his military service. One primary advantage is that the choice of service may be made by the individual rather than by the Department of Defense, so long as this choice is within the desired allocations and proportions required by the services."

NAVY

Hospital Corpsman Earns Ph.D. While on Active Duty.—By attending classes during off-duty hours for about nine and one-half years, hospital corpsman first class Albert D. Jenkins has acquired bachelor, master, and doctorate degrees, conferred by the University of Edinburgh, Scotland, where he met entrance requirements before joining the Navy in January, 1943. He attained a B.S. degree in five and one-half years by attending Boston College and Harvard Medical school while attached to the Naval Hospital at Chelsea, Mass., and by attending the University of Washington while assigned to the Bremerton Naval Hospital. For a masters degree, he attended the University of Hawaii while on duty at the Tripler General Hospital in Honolulu. The subject of his thesis for a masters degree was "Experimental Psychology, the Adult Male." He has acquired a Ph.D. in clinical psychology. All credits for his work in other colleges and universities were transferred to the University of Edinburgh.

Born in 1926, in Portland, Maine, he served aboard a Landing Ship Tank during the invasion of Okinawa; while in service, he was credited with saving many lives when his ship was hit repeatedly and was awarded the Bronze Star medal. During the Korean campaign he served in both Japan and Korea. Jenkins completed training at the Navy Submarine School in April, 1955, and now is assigned to the submarine USS Ray.

Personal.—Lieut. Pauline E. Clarke, who was recently commissioned in the Medical Corps of the Navy, is one of five women doctors in the regular Navy. Lieut. Clarke is presently on duty at the Naval Dispensary, Washington, D. C.

ATOMIC ENERGY COMMISSION

Fellowships in Industrial Medicine.—The U. S. Atomic Energy Commission offers eight fellowships providing advanced training and on-the-job experience in industrial medicine, particularly in relation to the atomic energy industry. The program will be administered by the atomic energy project, University of Rochester (N. Y.) School of Medicine and Dentistry. The fellowships are open to men and women physicians who are citizens of the United States, who have graduated from an approved college of medicine at least two years before beginning tenure of the fellowship, and who are licensed to practice medicine in one of the states or territories of the United States. Successful candidates will be required to have a full F. B. I. background investigation and to be cleared by the commission before award of a fellowship. Applications for the academic year 1956-1957 should be filed before Jan. 1, 1956. It is expected that the selection of fellows will be made on or before Feb. 1, 1956, but fellowships may be assigned at any time at the discretion of the committee. The stipend during a fellowship or academic year is $3,600. The sum of $350 is added to the total stipend for a wife, and $350 more is added for each dependent child. Tuition and laboratory fees, which would be required of students of similar university status, will be paid in academic courses. Certain other expenses incident to the work will be paid when approved by the committee. During the in-plant year of training, the stipend will be $6,000. The fellowship year of academic training may be taken at a university offering an approved graduate course in industrial medicine that can provide special training facilities in the health problems associated with the atomic energy program. The in-plant year of training will be given at A. E. C. contractor installations such as Oak Ridge, Tenn., Los Alamos, N. Mex., Richland, Wash., and other areas where there are major industrial medical units. Address all inquiries to: A. E. C. Fellowships in Industrial Medicine, Atomic Energy Project, University of Rochester, School of Medicine and Dentistry, Rochester 20, N. Y. Attention: Henry A. Blair, Ph.D.

PUBLIC HEALTH SERVICE

Personal.—Dr. T. D. Dublin has been appointed to the staff of the National Institutes of Health, with special assignment to community services programs. He will assist Dr. C. J. Van Slyke, associate director (for extramural affairs), and the staffs of the seven Institutes. Dr. Dublin has been a special consultant to the National Foundation for Infantile Paralysis for planning and organization of the poliomyelitis vaccine field trial. Formerly the executive director of the national health council, Dr. Dublin received his M.D. degree from Harvard University and a Dr.P.H. degree from Johns Hopkins University.

MISCELLANEOUS

Grants-in-Aid.—The Division of Medical Sciences, National Academy of Sciences-National Research Council, is accepting applications for grants-in-aid of research in three specialized fields: 1. The Committee on Problems of Alcohol is interested in fostering research, primarily on the physiological, biochemical, and pharmacological effects of alcohol. Applications should be postmarked not later than Jan. 15, 1956. 2. The Committee for Research in Problems of Sex, concerned with encouraging research primarily on the mechanisms controlling sexual behavior in animals and man, invites proposals involving endocrinological, neurological, psychological, anthropological, phylogenetic, and genetic studies directed toward this objective. Requests will also be considered that deal with the physiology of reproduction or with related biological and biochemical fields. Applications should be postmarked on or before Feb. 1, 1956. 3. The Committee on Drug Addiction and Narcotics invites applications for the support of research in analgesia and addiction and will welcome information on basic research being carried on in these fields. For application blanks, write to the appropriate committee of the Division of Medical Sciences, National Academy of Sciences-National Research Council, 2101 Constitution Ave. N. W., Washington 25, D. C.

DEATHS

Ames, Azel ⊕ Hamilton, Ohio; born in Newton, Mass., Feb. 10, 1903; Columbia University College of Physicians and Surgeons, New York City, 1927; interned at the New York and Presbyterian hospitals in New York City; formerly a resident in surgery at the Cincinnati General Hospital; at one time assistant professor of surgery at the State University of Iowa College of Medicine, Iowa City; specialist certified by the American Board of Surgery; certified by the National Board of Medical Examiners; member of the Society of University Surgeons and the American Trudeau Society; past-president of the Butler County Medical Society and the Hamilton Academy of Medicine; served on the medical service plans committee of the Ohio State Medical Association and on the Butler County Advisory Board of Health; president of the Butler County Tuberculosis and Health Association and past-president of the Ohio Tuberculosis and Health Association; for a short time a lieutenant commander in the U. S. Naval Reserve during World War II; on the staff of the Hughes Memorial Hospital; associated with the Fort Hamilton Hospital and the Mercy Hospital, where he was chief of staff, and where he died Sept. 24, aged 52, of coronary thrombosis.

Luce, Henry Ashley ⊕ Detroit; born Oct. 16, 1874; Detroit College of Medicine, 1905; clinical assistant professor of psychiatry at his alma mater, now known as the Wayne University College of Medicine; member of the House of Delegates of the American Medical Association in 1924 and from 1931 to 1946; charter member and past-president of the East Side Medical Society; past-president of the Michigan State Medical Society and the Wayne County Medical Society; in 1919 president of the Detroit College of Medicine and Surgery Alumni Association; served during World War I; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association; fellow of the American College of Physicians; medical director, Michigan Society for Mental Hygiene; in 1938 named to a seven man advisory committee for the expansion of public health activities in Michigan; on the staffs of the Evangelical Deaconess, City of Detroit Receiving, and Harper hospitals, the Eloise Hospital and Infirmary, and the Jennings Memorial Hospital, where he died Oct. 28, aged 81, of pneumonia.

Simpson, Leo Francis ⊕ Rochester, N. Y.; born June 26, 1884; University of Buffalo School of Medicine, 1905; specialist certified by the American Board of Surgery; member of the House of Delegates of the American Medical Association, 1950 and 1951; fellow of the American College of Surgeons and the International College of Surgeons; past-president of the Medical Society of the State of New York, Monroe County Medical Society, and the Rochester Academy of Medicine; associated with the Strong Memorial Hospital, Monroe County Infirmary, and the Park Avenue Hospital; in 1952 awarded an honorary degree of doctor of science by the St. Bonaventure University; died Oct. 31, aged 71, of coronary disease.

Corey, Giles Patterson, Greenville, N. C.; born in Greenville, N. C., Aug. 19, 1925; Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, 1951; interned at the Jefferson Hillman Hospital in Birmingham, Ala., where he served a residency in surgery; appointed a lieutenant (j. g.) in the Medical Corps of the U. S. Naval Reserve on Aug. 31, 1953; reported for active duty on Oct. 30, 1953, at the Naval Auxiliary Air Station, Barin Field, Foley, Ala.; in April, 1954, reported to the USS Antietam; promoted to the grade of lieutenant on July 2, 1954; remained in that assignment until Sept. 2, 1955; died in the Duke Hospital, Durham, Oct. 23, aged 30.

Barstow, William Edwin ⊕ St. Louis, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1905; past-president of the Michigan State Medical Society and served as councilor of the Eighth District; past-president of the Gratiot-Isabella Clare Counties Medical Society; past-president of the school board; charter member and past-president of the Rotary Club; for many years active in boy scout work and was given the Silver Beaver award; died in the Providence Hospital, Detroit, Oct. 6, aged 78, of pericarditis and myocardial infarction.

Ahlquist, Richard Elmer ⊕ Spokane, Wash.; Denver and Gross College of Medicine, 1910; also a graduate in pharmacy; governor of the American College of Surgeons; charter member and first president of the Spokane Surgical Society; past-president of the North Pacific Surgical Society; served during World War I; district surgeon for the Union Pacific Railroad Company; on the staffs of the Deaconess Hospital, Sacred Heart Hospital, and St. Luke's Hospital, where he died Oct. 12, aged 67, of carcinoma of the head of the pancreas.

Axelson, Axel U. ⊕ Detroit; Detroit College of Medicine and Surgery, 1918; member of the American Academy of General Practice; an associate member of the International College of Surgeons; on the staffs of the Woman's, St. Joseph's, and Florence Crittenton hospitals; died Sept. 5, aged 66, of ruptured aneurysm of the aorta.

Beebe, Hugh McDowell ⊕ Ann Arbor, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1907; served on the faculty of his alma mater and of the University of Michigan Medical School; fellow of the American College of Surgeons; served during World War I; on the staff of the St. Joseph Mercy Hospital, where he died Oct. 3, aged 72, of myocardial infarction.

Benson, John Charles ⊕ Flint, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1907; past-president of the Genesee County Medical Society; on the staffs of the Hurley, St. Joseph, and McLaren General hospitals; died Oct. 9, aged 77, of aplastic anemia.

Boeckmann, Egil ⊕ St. Paul; University of Pennsylvania Department of Medicine, Philadelphia, 1905; member of the American Academy of Ophthalmology and Otolaryngology; died in Dellwood, Minn., Sept. 3, aged 73, of pneumonia.

Burns, Keith Gillies ⊕ Seattle; Queen's University Faculty of Medicine, Kingston, Canada, 1924; member of the American Trudeau Society and the American Academy of General Practice; on the staffs of the Seattle General and Providence hospitals; died in Parry Sound, Ontario, Canada, July 4, aged 57, of coronary disease.

Cascio, Domenico, Atlantic Highlands, N. J.; Regia Università degli Studi di Messina. Facoltà di Medicina e Chirurgia, Italy, 1923; died in Middletown July 5, aged 59, of cerebral hemorrhage.

Chase, Robert Logan ⊕ Glasgow, Ky.; Western Reserve University School of Medicine, Cleveland, 1943; interned at the Peoples Hospital in Akron, Ohio; served during World War II; on the staff of the T. J. Sampson Community Hospital; died Oct. 9, aged 37, of injuries received in an automobile accident.

Chilton, William Ernest ⊕ Fort Worth, Texas; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1900; fellow of the American College of Surgeons; served during World War I; on the staffs of the W. I. Cook Memorial Hospital Center for Children, City-County Hospital, All Saints Hospital, and St. Joseph's Hospital; died Oct. 27, aged 78, of monocytic leukemia.

Collom, Spencer Allen Jr. ⊕ Texarkana, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1929; fellow of the American College of Surgeons; served during World War II; on the staff of the Texarkana (Texas) Hospital and St. Michael's Hospital in Texarkana, Ark.; co-founder and president of the Temple Memorial Home for Crippled Children; died Oct. 10, aged 51.

⊕ Indicates Member of the American Medical Association.

De Moully, Oliver Martin ⊕ Flasher, N. D.; Marquette University School of Medicine, Milwaukee, 1919; local health officer; died in St. Alexius Hospital, Bismarck, July 26, aged 64, of squamous cell carcinoma.

Dufty, George Watson, Nassau, N. Y.; Albany (N. Y.) Medical College, 1910; for many years county coroner; on the staff of the Samaritan Hospital in Troy; died Oct. 9, aged 72, of a heart attack.

Evans, Thomas Jr., Pittsburgh; University of Pennsylvania Department of Medicine, Philadelphia, 1905; an associate member of the American Medical Association; member of the Medical Society of the State of Pennsylvania; past-president of the Pittsburgh Gynecology Society; served on the staffs of the Pittsburgh, Columbia, and St. Mark's hospitals; died Oct. 23, aged 76.

Forbes, David Arthur, Seattle; Williamette University Medical Department, Salem, Ore., 1907; died in Maynard Hospital Sept. 26, aged 80.

Foster, Eli Norman, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1903; an associate member of the American Medical Association; served during World War I; died in the Veterans Administration Hospital, Oakland, Oct. 19, aged 75.

Gerry, Frank Henry ⊕ Arlington, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1920; member of the American Society of Anesthesiologists; at one time school physician; served during World War I; on the staff of Symmes Hospital in Arlington and Chelsea (Mass.) Memorial Hospital; died in Bedford Oct. 25, aged 62, of coronary sclerosis.

Goldstone, Walter ⊕ Brooklyn; Université de Lausanne Faculté de Médecine, Switzerland, 1942; on the staffs of the Cumberland and Prospect Heights hospitals; died Aug. 12, aged 40, in the ship disaster of the Levin J. Marvel on Chesapeake Bay, Md.

Hammond, Walter Jean, Laconia, N. H.; Medical School of Maine, Portland, 1912; member of the New England Society of Psychiatry and the New Hampshire Medical Society; died Aug. 1, aged 74, of acute coronary thrombosis.

Hayman, Charles Stanley ⊕ Boscobel, Wis.; Rush Medical College, Chicago, 1895; died Aug. 11, aged 83, of carcinoma of the prostate.

Hood, William Andrew ⊕ Hickory Grove, S. C.; College of Physicians and Surgeons, Baltimore, 1889; died in the Divine Saviour Hospital, York, Oct. 4, aged 86, of arteriosclerosis.

Knutson, Olaf A., Buxton, N. D. (licensed in North Dakota in 1904); member of the North Dakota State Medical Association; died in Grand Forks Sept. 25, aged 76.

Le Doux, Morris Stirling, Rayne, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1923; member of the Louisiana State Medical Society; fellow of the American College of Surgeons; past-secretary of the Shreveport Medical Society; for a long time on the staff of the Highland Sanitarium in Shreveport; died in the Lafayette (La.) Sanitarium Sept. 28, aged 57.

McCann, Eugene John ⊕ Minneapolis; University of Minnesota Medical School, Minneapolis, 1931; served during World War II; on the staffs of the Veterans Administration Hospital, St. Andrew's Hospital, St. Mary's Hospital, and St. Barnabas Hospital, where he died Aug. 20, aged 51, of carcinoma.

McNeeley, Hugh Lyle, Cleveland; University of Wooster Medical Department, Cleveland, 1909; on the emeritus staff of St. Vincent Charity Hospital, where he died Sept. 16, aged 69, of coronary thrombosis.

Maguire, Richard Aloysius, Somerville, Mass.; Boston University School of Medicine, 1935; interned at the Carney Hospital in Boston; died in West Medford Sept. 9, aged 48, of brain tumor.

Mershon, Glenn Earl ⊕ Mount Carroll, Ill.; Barnes Medical College, St. Louis, 1901; on the staffs of the Savanna City (Ill.) Hospital, Deaconess and St. Francis hospitals in Freeport; died Oct. 8, aged 79, of coronary thrombosis.

Metcalf, Henry Martyn ⊕ Hendrysburg, Ohio; University of Pennsylvania Department of Medicine, Philadelphia, 1905; served on the staff of Elyria (Ohio) Memorial Hospital; died in Albion, N. Y., July 19, aged 83, of coronary occlusion.

Murphy, Lawrence ⊕ Newburyport, Mass.; St. Louis College of Physicians and Surgeons, 1925; died Sept. 22, aged 60, of coronary thrombosis.

Outlaw, Jackson Kent ⊕ Albemarle, N. C.; Syracuse University College of Medicine, 1923; interned at the New York City Hospital; died in the Baptist Hospital, Winston-Salem, N. C., Sept. 28, aged 59, of arteriosclerotic heart disease.

Rochester, Gertrude, New York City; Cornell University Medical College, New York City, 1899; an associate member of the American Medical Association; served on the staffs of the Bellevue, New York Postgraduate, and Manhattan Eye, Ear and Throat hospitals; died in the New York Hospital Nov. 9, aged 77.

Sifritt, Neuman, Marion, Ohio; Eclectic Medical Institute, Cincinnati, 1896; also a pharmacist; for many years county health officer; served on the executive board of the Ohio Public Health Association; died Oct. 16, aged 84.

Speidel, Frederick W. ⊕ Senath, Mo.; Louisville (Ky.) Medical College, 1892; died in the Presnell Hospital, Kennett, July 29, aged 86, of gangrene of the left foot and leg.

Stone, Alvin Alexander, Shaker Heights, Ohio; Western Reserve University School of Medicine, Cleveland, 1913; died Sept. 28, aged 68, of hypertensive cardiovascular disease.

Stone, Theodore Croft, Greenville, S. C.; Medical College of the State of South Carolina, Charleston, 1903; died in the Transylvania Community Hospital, Brevard, N. C., Sept. 24, aged 81, of coronary thrombosis and cardiovascular renal disease.

Tillottson, Squire Fountain, Pilot Mountain, N. C.; North Carolina Medical College, Davidson, 1905; died in the North Carolina Baptist Hospital, Winston-Salem, Sept. 12, aged 72, of myocardial infarction.

Tippet, Walter P. ⊕ Green Bay, Wis.; University of Illinois College of Medicine, Chicago, 1925; served as secretary and president of the Brown-Door Kewanee Counties Medical Society; served during World War I and was decorated with the Croix de Guerre and the Purple Heart; president of the Bellin Memorial staff; trustee of Lawrence College, Appleton; died Sept. 12, aged 60, of coronary disease.

Tolle, Charles Banta ⊕ Pontiac, Mich.; University of Michigan Medical School, Ann Arbor, 1942; interned at the University Hospital in Ann Arbor, where he served a residency in pathology; served in the regular Navy and during World War II; secretary-treasurer of the Oakland County Medical Society; clinical laboratory director at St. Joseph Mercy Hospital; died Oct. 22, aged 37, of arteriosclerosis.

Torrance, Adam Morton, Harpursville, N. Y.; University of Toronto Faculty of Medicine, Toronto, Canada, 1923; member of the Medical Society of the State of New York; served during World War II; health officer, school physician, and surgeon for the Delaware and Hudson Railroad; on the staffs of the City and Our Lady of Lourdes hospitals in Binghamton; died Sept. 25, aged 55, of coronary occlusion.

Van Kirk, Asher W., Seattle; College of Physicians and Surgeons, Baltimore, 1907; served during World War I; died in the Veterans Administration Hospital Oct. 19, aged 73.

Vertuno, Louis Abbott, Oak Park, Ill.; Chicago College of Medicine and Surgery, 1911; on the emeritus staff of the Oak Park Hospital; died in Elgin, Ill., Oct. 13, aged 72, of cerebral arteriosclerosis.

Willis, John Buren ⊕ Mayview, Mo.; Barnes Medical College, St. Louis, 1897; served during World War I; died in the Veterans Administration Hospital, Kansas City, Mo., Oct. 25, aged 81, of coronary occlusion.

Wood, George H. ⊕ Onaway, Mich.; Saginaw Valley Medical College, Saginaw, 1901; served on the staffs of the Delray and Michigan Mutual Industrial hospitals; died in Lansing Sept. 16, aged 81, of coronary occlusion.

FOREIGN LETTERS

AUSTRIA

Serum Proteins in Patients with Concussion.—At the meeting of the Society of Physicians in Vienna on Oct. 7, Dr. E. Neumayer reported that he subjected the serum of 25 patients with cranial trauma (of whom 14 showed clinical signs of concussion, 3 signs of contusion, and 8 no evidence of concussion) to paper electrophoresis. There was dysproteinemia, and, at the end of the first week of illness, there was a further shift in the serum proteins that did not depend on injuries of bone or soft tissues. These findings corresponded with the course of other autonomic reactions after concussion in patients who, at the end of the first week of illness, showed signs of autonomic ataxia. These findings, in combination with the centrally localized trauma, are evidence of the central influence exerted on the relative proportions of the serum proteins. Furthermore, by correlation with the clinical aspect, a criterion was obtained for the presence or absence of the concussion syndrome, since the change in the serum proteins did not occur until after the end of the first week of illness when clinical evidence of concussion was seen.

Dysfunction of Adrenal Cortex.—At the same meeting, Husslein and Schüller reported that disturbances of the menstrual cycle in women, or more or less pronounced abnormalities in the reproductive organs in girls, may be the first symptoms of adrenocortical dysfunction. Because the gynecologist is often the first to be consulted when such a disturbance occurs, he should study these phenomena that otherwise lie in the domain of the internist. An analysis of hormones from the urine is an aid in making the diagnosis. The determination of the neutral 17-ketosteroid and the corticosteroids is an aid to diagnosis. In one of the authors' patients with a postpubertal form of adrenocortical hyperplasia, it was possible to relieve the secondary amenorrhea with cortisone and to obtain a diphasic menstrual cycle. After treatment, the patient, who had been sterile, was able to conceive.

Electrocoagulation of Cervical Erosion.—At the October meeting of the Austrian Society of Gynecologists and Obstetricians in Vienna, Dr. V. Grünberger stated that according to the literature electrocoagulation is the method of choice for the treatment of cervical erosion. It should be preceded by special examinations to rule out carcinoma. The case is described of a 49-year-old woman whose Papanicolaou test was negative on three occasions. Colposcopy repeated after six weeks was also negative for any evidence of cancer. After a year clinical and colposcopic findings and smears raised suspicion. Curettage revealed an epidermoid carcinoma. Reexamination of the old vaginal smears revealed evidence that carcinoma was probably present at the time of the first examination. Cytological diagnoses should therefore be made only by an expert. Follow-up examinations after electrocoagulation are necessary up to the time of healing, which should be complete within about six weeks. Development of carcinoma of the cervix after coagulation is extremely rare.

BELGIUM

Medical Liberty.—A special session of the Belgian Society for International Medical Law was held in Liege to study the international tendency toward institutionalization in medicine. Professor De Busscher spoke in favor of traditional medicine with its spirit of sacrifice, disinterestedness, and implicit obligations of care. In some physicians an unfortunate mercenary spirit has grown up that is a stain on the profession. Patients of the poorer classes need pay only a third of their medical expenses, but this amount should be scrupulously collected so as not to harm the physician-patient relationship. The session had a special significance in view of the protest on the part of Belgian physicians against the recent decisions by the Public Health Administration that all medical fees would be paid directly by the Medical Insurance and Social Security Administrations instead of by the patient and that the physicians of these insurance organizations would check all declarations and certificates issued by treating physicians. Physicians in private practice refused to apply these measures and went on strike, not against the patients but against the administration. They achieved their result by simply not filling out any of the forms required by the two organizations. In the face of this mass movement, the ministry suspended its decision and new negotiators were engaged to arbitrate disagreements between the medical profession and the government.

ENGLAND

Mental Hospitals.—In the *Lancet* of Oct. 29, page 917, Dr. J. Bickford describes the plight of what he calls the medically forgotten patient, that is, the chronic psychotic patient for whom little is done, except to provide essential clothing, food, and shelter. Many elderly patients are retained in mental hospitals for social rather than medical reasons. If they were nursed elsewhere the bed shortage would be greatly relieved. The business of a hospital is to cure patients, not to hoard them, and the sheltering of patients in a hospital without any effort to make them well is a complete denial of the functions of medicine. Dr. Bickford also deplores the temporary solution of the shortage of nurses in mental hospitals. The number of assistant nurses, who have no intention of qualifying, is being multiplied, but nurses of this grade cannot undertake responsible work or supervise treatment. They act merely as custodians. During visits by laymen to mental hospitals, emphasis is placed on the admission wards, convalescent villas, and occupational therapy, but not on the plight of the chronic psychotic patient. The physicians have little incentive to discharge these patients, because, if there are any empty beds, the regional hospital board will fill them up with the unwanted patients of other hospitals or with foreign patients who know no English. The existence of these foreign patients is a problem in British mental hospitals because no verbal contact can be made with them by psychiatrists or nurses. Nearly every hospital has 5 or 10 such patients. Another reason for not discharging patients from the mental hospitals is the possible reduction in the senior nursing staff. The Board of Control does not help the chronic mental patient. It exists to see that patients are not illegally detained. Inspections of hospitals by the board's commissioners sometimes take less than an hour. Research into chronic mental illness is not encouraged because young psychiatrists find work in general hospitals and "domiciliary" visits more rewarding. Psychiatrists rarely have the care of chronic psychotics. About a third of all patients in mental hospitals are permanent inmates. They are clad in shapeless garments, and, if they are allowed out of bed, they never wear shoes. Too often they are regarded as objects of disgust and ridicule, and sometimes it seems that the attention paid them is less than that accorded to the hospital's pigs.

Nuffield Health Centers.—When the new national health scheme was being envisaged before 1948 many health centers were planned. These buildings, in which general practitioners were to treat their patients as part of a group practice system, have remained largely in the blueprint stage owing to the unexpected high cost of the health service. Only a few have been built as experiments by the local authorities in association with the Ministry of Health. This has caused dissatisfaction to many practitioners who thought that they could offer better service to their patients through health centers. There is little possibility of their being built now except in new towns, growing suburbs,

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The items in these letters are contributed by regular correspondents in the various foreign countries.

and rebuilt areas. An example of careful planning of these centers without excessive cost has been set by the Nuffield Provincial Hospitals Trust. Owing to its initiative and generosity, three health centers have been finished and were officially opened by Lord Nuffield on Oct. 17. These three centers form part of a $728,000 scheme by the trust to provide a comprehensive medical service not under state control to serve an eventual population of 80,000 that is expected to be reached at the new town of Harlow in Essex. Under this scheme the general practitioner service will be integrated with an industrial health service and the proposed new Harlow hospital. It is hoped that three more health centers in the town and two industrial health centers will be provided. In addition to facilities for general practitioners there will also be orthopedic, ophthalmologic, speech therapy, and child guidance clinics and investigation units working in connection with the local hospital. Since November a nonprofit company of industrialists has operated an industrial health service for the 5,766 people working at present in Harlow. In the past there has been some doubt as to whether x-ray and pathology departments should be included in the health centers, because it was feared that they might be uneconomical. At Harlow the Nuffield Trust will probably make the experiment. The centers at Harlow are not health centers as originally envisaged in the terms of the National Health Service, since dentists may practice privately there. The rent of a single furnished room used as an office is $364 per annum, plus a local tax. Physicians must provide secretaries. The trust aims at evolving a pattern of comprehensive medical care in Harlow that may prove a future guide to other communities.

Effects of Smoking.—Oswald and Medvei have conducted an investigation on the effect of cigarette smoking on the incidence of bronchitis, using civil servants as clinical material (*Lancet* **2**:843, 1955). The Civil Service has a large number of employees available for questioning, and groups of similar age, sex, occupation, income, and domestic circumstance, with similar degrees of exposure to the dangers of respiratory infection and atmospheric pollution, can be selected for study. The investigation was limited to the staffs of the Treasury and the Ministry of Supply in London, and, of these, 5,844 clerical workers were interviewed. The age range was 16-65, so that no opinion could be expressed on the effect of smoking on bronchitis in persons over the age of 65. The subjects were classified as smokers if they had smoked five or more cigarettes a day for five or more years; if they had smoked less than this they were classified as nonsmokers. They were further classified as having no pulmonary symptoms; occasional or habitual morning cough or sputum; mild bronchitis; moderate bronchitis; or severe bronchitis. The emphasis in grading was on symptoms and disability. Seventy-six per cent of the employees had had radiographs of the chest taken within the previous five years. Of the 782 employees regarded as having bronchitis, 74% were in the mild, 22% in the moderate, and 4% in the severe group. The most striking feature of the survey was that in every instance the proportion of employees having mild respiratory symptoms and bronchitis was consistently higher among smokers than in nonsmokers. The prevalence of bronchitis was 16% in all smokers and 9.4% in the nonsmokers. For the entire series, 36% of the smokers were free from respiratory symptoms, compared with 53% of the nonsmokers.

Silicosis in Ironworks.—A suit was brought by a molder against an iron foundry for which he had worked for 25 years. The molder worked in a large room with a floor of sand, filling molds with molten iron and opening them when the metal had cooled. In the last process adherent sand was "knocked off" the castings and in the process clouds of sand dust were formed. The worker was also exposed to the sand clouds raised by fellow workers. It was not appreciated until 1950 that this process was dangerous to health and caused fracture of the grains of sand, which, when inhaled, could cause silicosis. By 1946 this worker contracted the disease; two years later it was incurable. By 1954 his expectation of life was only 15 years, although he was in his early 40's. In his suit he stated that he should have been protected by a mask or respirator. At the hearing it was stated that it would require 15 years' exposure to the fine sand particles for incurable silicosis to develop. Although 20 types of respirators were available, it was shown that in the light of recent knowledge only one of them, the Mark IV, would have been effective in filtering out the fine particles, so that if any others had been used they would not have prevented the disease from progressing. The judge ruled that Mark IV respirators should have been provided, and he awarded damages of $26,900 for loss of expectation of life, loss of earning capacity, and inability of the plaintiff to provide for his dependents. The Court of Appeal directed a new trial on the question of whether failure to provide Mark IV respirators was in fact a breach of the employers' obligation in view of the state of knowledge at the time.

Treatment of Tuberculosis.—Aminosalicylic acid combined with isoniazid has been shown to be tuberculostatic in vitro. Dr. J. Clegg has carried out a small pilot study to determine if the compound is effective in the treatment of human tuberculosis and to see how quickly it produces resistance (*Brit. M. J.* **2**:1004, 1955). Because on ethical grounds it was considered undesirable to treat new patients with the new compound, and as it seemed that it would prove of value in patients infected with strains already resistant to streptomycin, isoniazid, and aminosalicylic acid, it was stipulated that the selected patients should (1) have chronic pulmonary tuberculosis, with one or more cavities and a strongly positive sputum; (2) be unsuitable for any treatment other than with antibacterial drugs; (3) have had at least three months' treatment with aminosalicylic acid or isoniazid, alone, or in combination, some time previously; (4) have had no change in treatment in the preceding two months; and (5) be likely to remain under treatment for at least three months. Twenty-five patients were selected, but only 17 completed the required treatment. They were given 600 mg. of the compound daily in three equal doses for three months. In none of them did full resistance to the compound develop. Partial resistance occurred in 10 patients. A lowering of the positivity of the sputum occurred in nearly all patients. There was no change in one case, a marked drop in 10, and sputum conversion in 6. In the last group none had previously had sputum conversion under treatment.

Effect of Hypothermia on Vital Organs.—Although it has been held that no gross alterations in tissue structure can be ascribed to hypothermia, Dr. Phyllis Knocker, of the Witwatersrand Medical School, Johannesburg, Union of South Africa, has shown that histopathological changes do occur in the vital organs of animals subjected to this procedure (*Lancet* **2**:837, 1955). Dogs were anesthetized, and, after laparotomy, biopsy specimens were taken of the liver, kidney, and adrenals. Hypothermia was induced by cooling the dogs with ice and was maintained up to two and a half hours, after which further biopsy specimens were taken. Histopathological changes were seen in the organs examined, even when the animals were not cooled beyond the point generally regarded as ideal for operation. The liver cells showed coarse fatty droplets, poor nuclear staining, loss of glycogen, and congestion of the blood sinusoids. The sudanophil substances in the adrenal cortex were increased and vacuolation occurred in the reticular zone. In the kidney the cells of the lower nephron were full of fat. The accumulation of fat in these organs, which was the chief finding, was attributed to anoxia. Similar changes were found when dogs were submitted to anoxia, using nitrous oxide. In view of these findings Dr. Knocker thinks that hypothermia, far from protecting the patient against operative stress, may actually increase the danger, and she questions the value of hypothermia during operation, even in selected cases.

Body Weight and Marital Status.—Lowe and Gibson (*Brit. M. J.* **2**:1006, 1955) examined the medical records for the last 10 years of 1,685 men and 5,081 women in the age group 20 to 59 employed by two large firms in Birmingham. The information available included weight, height, sex, age, marital status, and, in the case of women, size of family. The weight of the women increased throughout the reproductive period; there was no "middle-aged spread" as popularly supposed. The mean weight of the women increased regularly by about 3 lb. (1.3 kg.) every five years. The weight of the men, who were factory workers and not a true cross section of the population, showed little increase in weight with age. The average weight of the men at age 20 was 149 lb. (67.6 kg.) and, if anything, was slightly less than this at age 65. Comparison with figures compiled earlier in the century suggests that the increase in weight of men formerly stated to occur with age no longer occurred. In each five year age group, married women weighed more than single women, and at corresponding ages married women with children were a little heavier than married women without children. It was concluded that the effect of childbearing was not the sole or even the most important reason for the difference in weight between single and married women.

Dr. Schweitzer Honored.—Dr. Albert Schweitzer, the medical missionary, musician, and philosopher, came to London in October to receive from the Queen the insignia of honorary membership of the Order of Merit. The only other living honorary member is President Eisenhower. After the Harveian Lecture on St. Luke's Day, Dr. Schweitzer was received by Sir Russell Brain, the president of the Royal College of Physicians. Dr. Schweitzer was also made an honorary fellow of the Royal Society of Medicine and of the Royal Society of Tropical Medicine and Hygiene. An honorary doctorate of laws was also conferred on him by the University of Cambridge. During his stay Dr. Schweitzer was the guest of Prime Minister Eden.

Abortion Law.—At the meeting in London in October, the Magistrates Association voted 189 to 148 in favor of a resolution to suggest changes in the present law on abortion. The main object was to frame a resolution to insure that no medical practitioner acting in good faith would be found guilty of an offense when terminating pregnancy to preserve the life of the mother and that therapeutic abortion might be permitted if there was a grave risk of the child's being born mentally or grossly physically defective. Technically, it is still an offense for a medical practitioner to terminate pregnancy for therapeutic reasons.

INDIA

Fluorosis Causing Paraplegia.—S. V. Rao reported (*J. Indian M. Profession* 2:780 [Sept. 6] 1955) a case of paraplegia due to fluorosis. The patient, a 45-year-old man, was admitted to the hospital because of tingling and numbness of both lower extremities, with loss of strength of 18 months' duration. The onset was insidious. Examination revealed loss of power in his lower extremities. His gait was spastic, and he was unable to move about except with the help of a stick. The abdominal reflexes were not elicited. Knee and ankle jerks were exaggerated on both sides. Bilateral ankle clonus was elicited, and Babinski's sign was elicited bilaterally. The patient complained of urgency of micturition and constipation. His spine was rigid in the thoracolumbar region. Roentgenograms of the spine, skull, and pelvis showed areas of sclerosis and exostoses of the pelvic bones. No diagnosis was made on the first admission, and the patient went home against medical advice. About 10 months later a case of paraplegia due to fluorosis with skeletal involvement was reported at a clinical meeting. The symptoms and signs in this case and the reported case were so similar that the patient was asked to report back to the hospital with a sample of his drinking water. The paraplegia had not improved, but he was able to walk with the help of a cane and had regained sphincter control. His drinking water, from a well in his own house, contained 7.2 ppm of fluorine. The fluorine content of his urine (normally 0) and blood was 3.3 ppm and 2.4 ppm respectively. A diagnosis of fluorosis was made. The paraplegia was caused by compression of his spinal cord due to changes in the spine, and the tingling and numbness were caused by pressure on roots and nerves. Treatment in such an advanced case is usually disappointing. The addition of magnesium oxide to the drinking water and boiling to remove the fluorine are recommended. Calcium salts are given to increase the excretion of fluorine, thus decreasing skeletal damage. Vitamin C is given empirically but is probably of no value. Treatment to be effective must be continued for a long time.

Electroretinography.—Dhanda R. P. (*J. Indian M. A.* 25:396 [Oct. 10] 1955) reported that electroretinography is an aid to the diagnosis and prognosis of diseases of the eye, as it provides an index of the functional capacity of the retina, especially in patients in whom the fundus cannot be examined directly due to opacities in the media or gross lesions in the anterior segments of the eye. It records the action potential of the retina when it is stimulated. Minimal light passing through the pupil is enough to stimulate the retina to its full activity.

NORWAY

Health of Older People.—A member of the Norwegian Old Peoples' Health Committee, Prof. Axel Ström has investigated the living conditions of 1,389 persons over the age of 70 years by means of a questionnaire. The subjects lived in 16 rural districts, 6 small towns, and in Bergen, the second largest city in Norway. The district nurses in these 23 areas were given special training for the task of visiting the homes of all these older people and inquiring about their woes and major and minor needs. It says much for the tact with which the nurses carried out this task that less than 2% of the persons questioned refused to cooperate; 79% had one or more complaints concerning their health, the women outnumbering the men in this respect in the ratio of 83 to 74%. The number of persons who had been admitted to hospital in the past year was smaller among those over than among those under 80 years of age. It is possible that in view of the shortage of beds hospitals have been reluctant to admit persons who are over 80 years of age and in need of nursing care rather than active treatment. The ailments complained of included rheumatism (31% of the men and 42% of the women). Its frequency was just as great in those under as in those over 80 years of age. Another common complaint, especially in those over 80 years of age, was giddiness of which 29% of the men and 38% of the women complained. Foot trouble was complained of by 22% of the men and 38% of the women. About 9% of the people over 70 years of age living in rural districts and 11-12% of such persons in the towns were in need of admission to an old age or nursing home.

Sport Injuries.—Dr. Otto Johansen in a survey of the records of all mishaps requiring first-aid treatment by the emergency medical service of Oslo during the period 1946-1948 found that 8% of these mishaps were the outcome of athletic events. Studying the same problem from another angle, Prof. Haakon Natvig has investigated the frequency of sickness leave traceable to sports in the staffs of two industrial concerns. He found that during a five year period 1.9% of all sickness leave could be traced to this factor and that 18.4% of the accidents leading to such leave were the outcome of some sport. The most recent of these investigations, reported in *Tidsskrift for den norske lægeforening* for Oct. 15, 1955, was undertaken by Andersen and Holen, whose material consists of 1,758 persons medically examined during the period 1949-1952. The injury rate averaged 8.9% and was higher in male than in female athletes. The sports most frequently responsible were skiing, soccer, and tennis. The most common lesions were fractures and sprains. The injury rate among men was highest in the age group 17-19 years. At this comparatively tender age, training is still often incomplete and the athletes take chances that older competitors would avoid.

National Association for Dietetics and Health.—In October, Prof. Axel Ström presided over a meeting at which Prof. Haakon Natvig outlined the conditions under which the new National Association for Dietetics and Health has come into being. The nationwide involuntary experiment in dietetics imposed on Norway during the last war yielded invaluable lessons. The remarkable decline in the mortality from certain important diseases during this war created new impulses in the field of dietetics, with special reference to the influence of diet on the cardiovascular diseases. As from Oct. 1, Dr. Nicolay Eeg-Larsen has been secretary general and scientific director of the association. He will collect and evaluate data concerning dietetics for the benefit of physicians, dentists, and teachers of dietetics. The association will have its own publication, entitled *Dietetics and Health,* and will promote research, with regard to the special dietetic requirements of certain groups in the community, such as seamen, fishermen, and the inmates of hospitals.

National Cancer Association.—Every October special meetings are held by the Norwegian National Cancer Association, which is affiliated with all the other important voluntary bodies in the country such as the National Tuberculosis Association and the Red Cross. It promotes cancer research, the provision of hospital beds, health education, and social welfare for the victims of cancer. At its annual meeting in October, special attention was focused on the organization of a lottery, a notice of which is to be sent to every household in Norway and a plan whereby women may now undergo an annual medical examination of the breasts at a charge of 2 *kroner* each time. The object of such an examination is the discovery of any abnormality, not just a fully developed cancer of the breast. The abnormalities found will be dealt with according to the special needs of each patient. It is believed that these examinations are more likely to relieve women's minds than to create any cancerophobia.

PERU

Symposium on Schizophrenia.—At the second Peruvian Journeys on Neuropsychiatry in September, Dr. Juan Francisco Valega, director of the Víctor Larco Herrera Hospital for Mental Diseases of Lima, said that during the 1940's the admission rate for schizophrenia increased steadily year after year, while that for manic-depressive psychosis and general paresis remained unchanged. Statistical data since 1950 are not reliable because admissions for mental diseases had to be greatly curtailed for lack of bed space. Dr. Alfredo Saavedra, associate professor of psychiatry, described a new type of schizophrenia, the endoreactive form in which (1) a severe emotional stress is always a precipitating factor; (2) there are basic changes of the mental states and of the mood; (3) irritability, aggressiveness, isolation, and psychological reactions disproportionate to the provocation are frequent (all these features constitute the so-called dysthymias and do not disturb the consciousness); (4) there is inversion of the affect, unconventional behavior, sudden changes in the behavior pattern, phenomena of depersonalization, increase of the sexual appetite, and loss of ethical and moral values; (5) there are marked autonomic reactions, especially the flushing associated with dysthymia; (6) there is negligible intellectual deterioration (most of the patients are intellectually bright); (7) the patients generally rebel against any type of therapy; and (8) except for the changes in the states of mind, all mental symptoms are episodic in nature, alternating with periods of apparent normality. Dr. Saavedra has observed this type of psychosis in more than 15 patients. He also described patients with atypical schizophrenia; the pseudoneurotic form with an onset that closely resembles hysteria or hypochondria; the form associated with endocrine disturbances of the menses; and forms that in their onset simulate manic-depressive or an epileptic psychosis.

Dr. Mariano Querol stated that insulin, electroshock, relaxing drugs, surgery, ventricular lavage, and psychotherapy, systematically and properly used, will produce fair to excellent results in every schizophrenic patient, the results depending more on the individual patient than on the type of therapy used. There is, however, no etiological treatment for the condition, and the patients who are improved or even apparently cured cannot be considered definitely cured. Chlorpromazine and reserpine are especially useful in the symptomatic therapy of the psychoses, particularly in the control of the anxiety states and in the supportive management of chronic cases. Besides, they greatly facilitate the psychotherapeutic approach to the patient. Dr. Querol and Dr. Horacio Estrabidis reported on clinicoelectroencephalographic correlations in schizophrenia. They studied 15 schizophrenic patients, two of whom also had epilepsy. All had been sick for more than two years and were chosen to undergo electroencephalographic study to reveal possible focal cerebral damage. Thirteen patients showed slight to severe abnormalities in their tracings. They were focal in four and generalized in nine. In only two of the five patients with tracings suggestive of idiopathic epilepsy had the epilepsy been diagnosed. All patients with psychomotor changes, ranging from akinetic to hyperkinetic, showed abnormal frontal lobe tracings, but the pattern varied from patient to patient. Failure to obtain clinical improvement was the rule in all patients whose tracings showed generalized abnormalities, and a follow-up examination of these patients revealed deterioration. On the other hand, of the five patients with focal abnormalities, two made a social recovery. The condition of the two patients with normal electroencephalograms deteriorated.

Dr. Carrillo Broatch reported on the therapeutic results in 250 schizophrenic patients, aged 23 to 79 years, who had suffered from the disease for 5 to 15 years. The treatments used were: (1) electroshock plus ventricular lavage; (2) insulin plus ventricular lavage; (3) electroshock plus insulin, antihistaminics and Cardiazol, anticonvulsant drugs, chlorpromazine, reserpine, corticotropin, or supporting therapy; (4) insulin plus chlorpromazine; (5) chlorpromazine plus Phenergan and phenobarbital; and (6) leukotomy plus ventricular lavage. In order to evaluate the usefulness of ventricular lavage, the author used it in combination with either electroshock or insulin in the management of 110 of their patients. It was performed soon after the electroshock therapy was applied or during the hypoglycemic coma. As soon as the procedure was finished analgesics intramuscularly and antibiotics, in doses depending on the grade of meningeal reaction obtained, were given. The body temperature, pulse rate, and respirations were carefully watched. No grave or fatal complications were observed. Every patient underwent the lavage once or twice a week, receiving 10 to 25 such treatments. Follow-up of all the patients of both groups extended from three to five years except in 20, who were followed for five months. In the group treated with ventricular lavage, there were 10 complete recoveries with no relapses and 22 social remissions. Patients with the catatonic form of the disease were most benefited by this treatment. The results in the other group comprising 140 patients were disappointing—only 6 completely recovered and 19 social remissions were obtained. No one treatment appeared to be better than the others. In this series 22.8% of the patients were benefited by treatment and 77.2% were not. The author concluded that ventricular lavage may be helpful in the management of chronic schizophrenia and should be tried in patients who have not been helped by other procedures.

Symposium on Apoplexy.—At the same meeting it was stated that, besides simple roentgenography, arteriography with iodopyracet was helpful in the diagnosis of the cause of cerebrovascular accidents. According to several speakers the hazards from its use are minimal if the contrast medium is used in quantities of 20 to 40 cc. Likewise, pneumoventriculography, when properly used in certain patients, is a useful measure. Dr. Susy Roedembeck said that authorities do not agree as to the cause of cerebral hemorrhage. She believes that every stroke results from a combination of several cerebral and extracerebral factors, which vary in different patients, so that no generalization can be made. Dr. J. O. Trelles said that he has often found histological evidence that cerebral hemorrhages, clinically regarded as being caused by arterial damage, are instead caused by rupture of a varix, phlebothrombosis, and thrombophlebitis.

Dr. Gino Costa stated that in the emergency management of apoplexy the physician should: (1) see that the patient's position is frequently changed to minimize the development of decubitus ulcers and pulmonary hypostasis, taking care also to prevent postural deformities of the paralyzed extremities; (2) improve the cardiovascular state of the patient by means of cardiac stimulants and coronary vasodilators if indicated; (3) insure adequate pulmonary ventilation and if necessary remove bronchial secretions at short intervals with a bronchial aspirator; perform a tracheotomy or give oxygen and carbon dioxide inhalations; (4) have the patient fed through a tube; (5) insure colon and bladder function by the use of enemas and catheterization if necessary; (6) keep the patient at rest, using chlorpromazine as the drug of choice; (7) give broad-spectrum antibiotics in large doses; and (8) avoid aminophylline, because recent studies indicate that it diminishes the cerebral blood flow. Since nicotinic acid and amyl nitrite cannot be shown to modify the cerebral blood flow, they too should be avoided. When thrombosis is found to be the cause of the stroke, expectant treatment is preferred in most cases. The use of substances that increase the cerebral blood flow is necessary, and 5% carbon dioxide with oxygen must be given. Papaverine and Hydergine can also be given for this purpose. The blood pressure should be normalized, but this must be done gradually. If diabetes or syphilis are causative factors, specific therapy is essential.

In cerebral vascular accidents caused by embolism, anticoagulant drugs are indicated if the services of a laboratory are available, otherwise it is better not to prescribe them. If used, bishydroxycoumarin and ethyl biscoumacetate are preferred. This therapy should be continued as long as the chance of new emboli persists. If hemorrhage is the underlying cause, anticoagulants and rutin are given; 40 cc. of 1% procaine in 500 cc. of isotonic glucose solution (or isotonic sodium chloride solution if the patient is diabetic), with an ampul of Phenergan, may be given by intravenous drip over a period of eight hours. If necessary, this can be repeated daily for several days. Mercurial diuretics are given to prevent cerebral edema. Surgery may be necessary, and a surgeon should be available on short notice. The blood pressure, usually greatly elevated in these patients, must be controlled. Carbon dioxide inhalations are also indicated. In the patient who survives the accident and remains incapacitated, rehabilitation is as important as the emergency therapy. The goals of the rehabilitation program are: (1) to prevent the development of deformities or to treat them if they have already developed; (2) to train the patient to walk again; (3) to teach him to perform the usual activities of daily life and to use the sound hand in simple tasks, trying in the meanwhile to develop the use of the affected hand; and (4) to treat the facial palsy and any existing speech disturbances. Although physicians disagree as to the usefulness of stellate ganglion block, it is helpful in the management of certain cerebrovascular accidents if it is performed within six hours after the onset. When thrombosis is the cause of the stroke, cortisone may be useful.

Dr. E. D. Rocca said that he has used artificial hibernation with encouraging results to control the shock caused by the accident. Dr. J. V. Beranles said that in a series of 134 patients who had suffered from cerebral vascular accidents, the following clinical types were recognized: (1) typical apoplexy characterized by sudden and prolonged loss of consciousness; (2) aggravation apoplexy characterized by a progressive loss of consciousness and a deteriorating general state; (3) cerebromeningeal apoplexy characterized by symptoms of severe meningeal irritation but without loss of consciousness; (4) simple paralytic apoplexy due to involvement of the cerebellum or cerebral trunk characterized by varying paralytic patterns depending on the location of the lesion; and (5) mild and poorly defined forms of apoplexy characterized by transient, mild symptoms and a good prognosis. In his series, 48 patients suffered from typical apoplexy of which 25 died, 13 recovered, and 10 remained invalids; the cause was hemorrhage in 42, thrombosis in 5, and embolism in one. Seventy-one patients had the simple paralytic form of which 53 recovered and 18 remained invalid; the cause was thrombosis in 58, hemorrhage in 6, circulatory disturbances in 6, and embolism in one. All the six patients with mild or poorly defined apoplexy recovered, and vascular lesions other than hemorrhage were found to account for the strokes. Five patients had the cerebromeningeal form, and in all of them hemorrhage was found to be the cause; one died, three recovered, and one remained incapacitated. In four patients the aggravation type of which three died and one recovered was found; hemorrhage and thrombosis were the causes. Only 20 strokes occurred in patients under 39 years of age. The underlying cause of the accidents was embolism in 2, aneurysm in 4, infection in 14, degenerative vascular disease in 43, cardiovascular disease in 45, and undetermined in 26.

SWITZERLAND

Army Medical Corps.—Over a four year period a complete reorganization of the Army Medical Service has been conducted by Brig. Col. H. Meuli, chief physician of the Swiss Army. Simulating wartime conditions, he has decentralized the deposition of military equipment. More effective use has been made of motor transportation without, however, neglecting the transportation of the ill and wounded by railroad. Special railroad cars have been designed for this purpose. In the mountains it is still necessary to use horses and mules for transport. A new department of defense against atomic, bacteriological, and chemical weapons has been created. For purposes of study of the new organization, data were submitted by two Medical Corps training schools and a number of medical "refresher" camps (all Swiss military trainees must take a three week refresher course every year after completion of their initial training). To provide these data, a review was made of the entire Medical Corps in action, from the front-line posts to the medical establishments farthest from the front. Medical trains, special boats, and helicopters were used on this occasion. A blood transfusion service and a psychological department have been developed.

In Switzerland a physician must serve his regular military training as a citizen, after which he goes to noncommissioned officers' school in order to gain the rank of corporal and then to officers' school to become a lieutenant. To give him wider training and teach him what physical efforts are required of all soldiers, a 15 day course has been set up at the Federal School of Sports in Macolin, to be given before the officer training program. An aeromedical service is being developed at Dübendorf. One of its projects is a study of telerecording of electroencephalograms of stunt pilots.

The problem of tuberculosis in soldiers is being studied. There are factors inherent in military groups that favor the development of the disease, but on the other hand the high degree of organization of the military system facilitates the continuous practice of control measures. In the course of one training year, 244 cases of tuberculosis were discovered among the recruits. Fifteen per cent of these cases were discovered at the first physical examination, 46% through the serial roentgenograms taken at the beginning of school, 3% as the result of a tuberculin test, 11% during the course of training, 19% through serial roentgenograms taken after basic training, 5% by change in the tuberculin reaction after basic training, and 1% after military service was completed. On entering the training program, 46 to 52% of the recruits had a positive tuberculin reaction. At the end of training, 3 to 6% of these had a changed reaction and 0.05% of these developed active tuberculosis. More than a third of those whose reaction had changed showed the sequelae of a tuberculosis dating from before service. The cost of the roentgenographic examinations performed in the Army is $60,000 annually. These statistics should intensify the campaign of vaccination.

Poliomyelitis is also a problem in the Swiss Army. In the last seven years, there was a yearly average of eight or nine cases, with zero to two deaths. These figures are low in view of the fact that each year from 275,000 to 450,000 soldiers serve from 8,000,000 to 10,500,000 days. The Swiss Army is made up of militias and is not a professional army. It cannot therefore develop its military medicine as do armies in countries that have military hospitals and a professional medical corps.

Increased Resistance of Leukocytes Due to Stilbene.—Storti and Pederzini were the first to study resistance on the part of leukocytes, although many had considered erythrocyte resistance. These workers noted that leukocyte resistance is greatly increased toward the end of pregnancy and falls to normal levels about a month after delivery. The number of leukocytes increases during pregnancy to reach its maximum in the ninth month, just when resistance also attains its maximum. The authors described experiments (*Schweiz. med. Wchnschr.* 85:949, 1955) proving that this phenomenon is largely due to the elevated estrogen levels of late pregnancy. The leukopenia caused by antimitotic agents may be due to leukocyte resistance. Experimental and clinical administration of stilbene, a synthetic estrogen, allowed continuance of antimitotic therapy longer than was thought possible without the association of estrogen, even in the presence of severe leukopenia.

CORRESPONDENCE

VACCINATION FOR TRAVELERS

To the Editor:—As a local health officer I appreciated the editorial "International Certificates of Vaccination" in THE JOURNAL, Oct. 29, page 852. I am sorry that making the point about smallpox precluded the chance of mentioning the fact that other immunizing procedures are also recorded on this form and suggesting that a physician executing this form has a responsibility to his patient as well as to expediting the federal smallpox control program. Day after day people apply to us for certification and we discover their physician did not discuss (or even discouraged consideration of) typhoid and paratyphoid immunization. Travelers to northwestern South America are advised to ignore yellow fever prophylaxis because it is not required. A physician confronted with these certificates should consider the immunization needs of his patient and not the requirements enunciated by some federal, insular, or territorial health department. Here are almost half a million chances a year for physicians to demonstrate their concern for the health needs of the patient rather than allowing themselves to be identified in their patients' minds as persons carrying out arbitrary dictates of some governmental agency. I would like to suggest that physicians be made acquainted with the mechanism for the U. S. Public Health Service collection of intelligence pertaining to international health hazards, also that the physician become acquainted with the "recommendations" columns of the booklet "Immunization Information for International Travel" (Publication no. 384, Division of Foreign Quarantine of the Bureau of Medical Services, United States Public Health Service).

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STERILITY OF LAUNDERED FABRICS

To the Editor:—In a recent article by Watson, Wilson, and Tuuri (Diaper Care in Nurseries, *J. A. M. A.* **155**:1579 [Aug. 28] 1954), the results of tests employing home-washing equipment in a utility area adjoining a hospital nursery were given. The conclusion drawn as a result of that work was that sterility resulted about 80% of the time when diapers were laundered in home-washing equipment by nursery personnel. Those familiar with laundering techniques and the sterilization characteristics relating to the laundry process will recognize that such a level of reduction of total count of micro-organisms associated with soiled textiles is totally inadequate. Watson, Wilson, and Tuuri state that a considerable saving of time of nursing and auxiliary forces is effectuated, in terms of reduced time of diaper handling and inventory record keeping, through the installation and utilization of home-washing equipment directly in the ward, thereby obviating the need for the hospital laundry for this duty or for the professional diaper service. Certainly recommendations purporting sweeping changes involving the health and safety of infants, not to mention the greater factor of contagion in general in hospitals, need to be based on complete and exhaustive evaluation of the bacteriological aspects of all phases of the laundering process. It is our opinion that nothing would be gained by adoption of any procedure involving the use of home-washing equipment by personnel in the hospital nursery who are not versed in the fundamentals of the detergent processes that obtain. The use of 1.5 oz. of powdered laundry soap, which is the normal capacity of home-washing equipment and which is deemed adequate by Watson and co-workers, hardly would be expected to produce the results obtained by professional diaper services using more than twice this quantity of soap and alkaline scouring agents and softened water under carefully controlled conditions. These investigators seemingly have overlooked completely the sterilizing aspect of chlorine bleach, laundry sour, and germicides, which have been in use in professional diaper services for years. Workers in the field of detergency research long have recognized the marked superiority of commercial laundering procedures over home washing in terms of such performance characteristics as soil removal, whiteness retention, and stain removal. These latter factors are, however, quite apart from the fundamental principles under discussion. The bacteriological cleanliness of the laundered fabrics is of prime consideration in this instance; indeed, arguments relating to economy or convenience are not pertinent to the case in point. Studies in the critical evaluation of the bacteriological efficiency of the laundering process have been made by Oesterling and associates (Sterilization in the Power Laundry, *Pennsylvania State Univ. Bull.* **37**:1, 1943) and by one of us (Sherrill, J. C.: A Quantitative Chemical Method for the Assessment of Bacteriostasis in Textile Fabrics Soiled with Nitrogenous Matter, Thesis, Pennsylvania State University, 1952). These studies have delineated the role of various aspects of the washing process on the sterility of the laundered fabric. It is not the purpose of this writing to present new evidence but rather to cite the studies aforementioned. It is believed that a review of these studies is pertinent, since considerable difference in the bactericidal efficiencies of home and professional laundering procedures does exist in fact and since little apparently is known of this disparity.

TABLE 1.—*Reduction in Total Bacterial Count Utilizing Typical Home and Commercial Laundry Procedures*

Laundering Method	Total Counts, per Cu. Cm. Initial	Total Counts, per Cu. Cm. Final	% Decrease in Count
Home-Washing Method			
Home washing equipment; one sudsing, three rinses; 120 F; powdered laundry detergent	220,000	19,000	91.4
Commercial Washing Methods			
Commercial washing equipment; three sudsings, five rinses; 160 F; built soap *	68,000	3,000	95.5
Commercial washing equipment; three sudsings, five rinses; 160 F; built soap, and sodium hypochlorite bleach	195,000	2,500	98.7
Commercial washing equipment; three sudsings, five rinses; 160 F; built soap, sodium hypochlorite bleach, and sour † final rinse	195,000	600	99.7
Commercial washing equipment; three sudsings, five rinses; 160 F; built soap, sodium hypochlorite bleach, and sterilizing sour final rinse	452,000	400	99.9

* Built soap refers to a blend of soap and alkali or alkaline salts. The latter compounds are added to enhance the scouring power of soap in the laundering process.

† Sour refers to a mild acid salt used to neutralize the last traces of alkali not removed by dilution in rinsing.

Proper handling of soiled diapers involves: (1) methods for minimizing growth of micro-organisms and development of odors during storage prior to laundering and (2) laundering methods capable of producing a sterile finished product. These requirements constitute a bacteriological problem of considerable magnitude. The work of Oesterling and associates has thrown considerable light on the sterilizing effect of stages and combinations of stages of professional laundry operations. Studies carried out by the American Institute of Laundering (Technical Report No. 394, 1950) have demonstrated the efficacy of the home washer in the sterilization of fabrics being laundered. Their methods of test are cited briefly. Specimens to be examined were collected in sterile quart jars and reserved in ice pack for examination. A 1.5% nutrient agar was seeded with 1 ml. portions of each sample and maintained at 37 C for 24 hours. Counts then were made using a colony counter in the usual manner. In one series of tests, counts were made of (1) tap water entering the plant, (2) water in equilibrium with the soiled fabrics prior to the start of the laundering process, and (3) water from which the laundered fabrics were removed. Table 1 illustrates the data obtained in the studies previously cited in the assessment of bactericidal power of professional and home-washing processes on ordinary assortments of soiled linens being laundered. Table 1 shows the degree to which sterilization has been accomplished in the home-washing process and in professional laundering processes of varying character. Note that where built soap, sodium hypochlorite bleach, and sterilizing sour have been used, nearly complete (99.9%) reduction in total bacteria counts has been effectuated, as compared to only 91.4% reduction in the home-washing procedure. These studies have been made under controlled conditions, wherein all phases of the washing process were under careful surveillance. The reduction in total bacteria counts achieved under actual operating conditions in typical professional laundry plants wherein special precautions are not taken with details of the washing procedure are shown in table 2. The washing procedures in these instances are not identical in detail in every case, but follow generally the procedure indicated in the last method of table 1, which is optimum. These data are from the work of Oesterling and co-workers. Total bacteria counts were made as described previously. In every case total counts were reduced below levels of total count prevailing in tap water. These data represent a cross section of widely varying locale and operating conditions, all of which come within the meaning of professional laundry practice.

TABLE 2.—*Sterility Achieved in Laundered Textile Fabrics Under Typical Operating Conditions*

Plant No.	Raw Supply (Tap Water)	Total Counts, per Cu. Cm.		% Decrease in Count
		Initial	Final	
1	16	14,500,000	0	100.0
2	23	8,000	4	99.9
3	6	931,000	3	99.9
4	11	13,700,000	8	99.9
5	38	9,250	8	99.9

Experimental evidence is available concerning the sterilizing effect of various steps in professional and home laundry practice against the pathogens Micrococcus (Staphylococcus) aureus, Salmonella (Eberthella) typhosa, and Clostridium welchii. In these tests sections of sterile white cotton sheeting were inoculated with these organisms, and, following a suitable growth period under controlled conditions, the fabrics were subjected to detergency treatments shown in table 3. The percentage decrease in numbers in each organism was determined by a comparison of the total counts of clear water extractions of test specimens prior to treatment and of water taken from the final bath at completion of each treatment. These data are also from the work of Oesterling and co-workers. It may be noted from table 3 that all phases of the professional laundry process are nearly completely effective in terms of sterilization of contaminated fabrics. The same is obviously not the case for the home-washing process. We wish to emphasize that while sterility may be achievable through the use of home-washing equipment, many factors are operating that tend to reduce the bacteriological efficiency of the home-washing process. Such requirements as adequate hot water supply at a temperature of 180 F, properly blended soap and alkali, chlorine bleach, and laundry sour frequently are not available in the hospital nursery. Optimum results in the laundering of soiled textile fabrics require a washing cycle comprising three or four soaping operations, followed by a minimum of four to six deep rinses. Professional laundry practice involves utilization under controlled conditions of all of these factors, many of which are completely impractical in home-washing procedures. All of these factors need to be considered carefully in light of the evidence presented before any precedent involving home washing in hospital nurseries is established.

TABLE 3.—*Sterilizing Effect of Components of Home and Professional Laundry Procedures on Three Pathogens*

Component of Laundry Procedure	% Decrease		
	Micrococcus (Staphylococcus) Aureus	Salmonella (Eberthella) Typhosa	Clostridium Welchii
Home Washing Procedures			
Water at 120 F	61.3	75.9	20.0
Water and powdered laundry detergent at 120 F	99.5	75.0	93.4
Commercial Washing Procedures			
Water at 160 F	99.9	99.9	100.0
Water and built soap at 160 F	100.0	100.0	100.0
Sodium hypochlorite bleach at 160 F (diluted)	100.0	100.0	100.0
Sterilizing sour at 120 F (diluted)	97.8	100.0	68.0

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COLOR

To the Editor:—A relatively narrow range of color tones, apparently not exceeding 12 to 14 tints, comprise the colors that create the most congruous or generally beneficial backgrounds in rooms or space, and there is nothing mysterious about them any more than nature is mysterious. They simply are comprised in the median range of the spectrum colors, and the more irritating color tones are not overprevalent in them. These colors also appear as the most popular color tones when average and normally healthy individuals have a choice of selection. These dozen or so tints may be flanked with some 14 to 16 additional color tones in a secondary preferential color range, as seen in the color harmony scale. As one moves from these tints one goes increasingly into what may be called exotic or "cloudy day" or like effects. These so-called exotic tints, although often attention evoking, tend to cause subtle effects or moods that normally healthy individuals instinctively try to avoid. Sex, age, and varying degrees of nervous degeneration—and, to some degree, racial origin—tend to cause variation in the reactions of different individuals to color. Often these variations are quite marked. Combinations of such types of individuals as patients in health care facilities are common. A certain percentage of people, of course, do not have normal color perception, and variations from the normal in the reactions of these individuals to identical colors may account for some of the varying color preferences expressed by different persons. The several types of color blind persons, and some of the primitive peoples who cannot distinguish all the visible spectrum colors, may be expected to express interest in those colors that they can distinguish. Color variation also results when objects are viewed under such lighting as daylight, ordinary incandescent, and fluorescent light. Incandescent light approximates sunlight closely, and no surface can show color that is not in the light rays that fall upon it. The effects of color on people are subtle and continuous. What colors will blend well? The answer depends on several factors. Usually buildings are so oriented that various rooms have different exposures to sunlight. Rooms that face the angle of the sun's rays gain a sense of shade and coolness by adding small portions of tinting color as umber, burnt sienna, or ochre to the sunny shades of background color, which usually is done by the paint manufacturer of standard paint in tints. But paint in tints with similar names, made by different manufacturers, may vary considerably in color. Sunlight effect is enhanced in rooms poor in sunlight by using color tones in which yellow, toned down with white, is present to impart an effect of warm sunlight. Where special conditions need not be met, it is usually best if shading is translucent, in soft brownish-yellows, and near opaque shades are avoided. Of course, there are several ways to control excess daylight or sky glare in rooms with light-colored pastel backgrounds by using shades, translucent curtains, or venetian blinds. Window shades, drapes, and other objects in rooms may be chosen to add color interest as well as to serve practical needs. The objective, of course, is to create a pleasing environment that will cause one to feel comfortable. Incongruous environmental color tends to produce ill-effects in individuals to an extent of causing an unhappy mood or an ill-at-ease or depressed feeling. It may cause eye strain and thus fatigue and may influence mood and will. A basic need in the creating of matter-of-fact color environments in buildings is to have technicians who are well trained in the theory of color and harmony and can cope with the practical needs where the work is to be done. This problem does not always have at hand a perfect solution. The preparation of beneficial color environments is a practical endeavor that calls for sound judgment. It is less a matter of learning something "new" than to understand and utilize what always was good. Those who create color environments exercise a mass influence on the well-being of people.

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WHOLE BLOOD TRANSFUSIONS

To the Editor:—In The Journal, Sept. 17, 1955, page 171, Krevans and Jackson described a "Hemorrhagic Disorder Following Massive Whole Blood Transfusions" associated with a fall in platelet level. It is well known that simple reduction of circulating platelets is not enough to produce hemorrhage. Other factors are involved, especially those that injure capillary walls. It is my feeling that one such factor is time alteration of bank blood. Most banks allow blood to be used within 21 days. During this time, even under the best conditions of storage, many leukocytes, erythrocytes, and platelets die and become not only useless but probably toxic in effect. Also, as time goes on, the multiplication of psychrophilic micro-organisms increases the toxic effect of certain units of stored blood. Small as each of these factors may be in one pint, their cumulative effect can be dangerous in massive transfusions. Then, the combination of platelet reduction from the large rapid infusion and capillary injury from the toxic substances produces abnormal bleeding. My practice is to limit the use of bank blood to 14 days. Even after massive transfusions I have not encountered abnormal or otherwise unexplained hemorrhage. It would be helpful to know whether the authors have evaluated this storage time factor of transfused blood and whether they have followed the suggestion in The Journal, July 2, 1955, pages 801 and 802, that 10 cc. of 10% calcium gluconate be given intravenously after each liter of blood in order to counter the effect of large amounts of citrate.

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ESOPHAGEAL VARICES

To the Editor:—I should like to comment on a statement made in an editorial entitled "Esophageal Varices," which appeared in The Journal, Oct. 1, 1955, page 484. In discussing the control of esophageal bleeding with the balloon tamponade procedure, it was pointed out that Linton and Warren state that this procedure is "useful in differentiating the source of bleeding, since, if the cardioesophageal tamponade controls the bleeding, then the source of it is esophageal varices and not a peptic ulcer of the stomach or duodenum." Some years ago I published a letter and the photographs of the first case of esophageal bleeding controlled by balloon tamponade reported in this country at the Pennsylvania Hospital (*J. A. M. A.* **138:**908 [Nov. 20] 1948). I referred to some work that had been done on the balloon tamponade. Two of the first six patients who were treated with balloon tamponade for presumed esophageal bleeding later were shown to have active gastric ulcers. The bleeding, presumably from the active ulcers, stopped as completely as had bleeding from esophageal varices when the tamponade tube was used. In all these patients a three lumen tube was used. One lumen was used for gastric suction, the second lumen anchored a mushroom balloon in the cardia of the stomach, and the third balloon provided the esophageal tamponade. By maintaining suction within the stomach I feel that this organ was able to collapse, shrink, and telescope upon itself toward the mushroom balloon in the cardia. This is the only mechanism by which I can explain the cessation of bleeding from these gastric ulcers. I have had the opportunity to see two other patients with gastric ulcers, in one of whom we used the mushroom balloon with gastric suction purposefully to attempt stopping the gastric ulcer bleeding. In this instance we were successful. In the other instance again a bleeding gastric ulcer was presumed to be bleeding esophageal varices, yet the same result was obtained. For this reason I do not feel that the balloon tamponade is always useful in differentiating bleeding of esophageal varices from that of a gastric ulcer.

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COBALT ADMINISTRATION AND THYROID ACTIVITY

To the Editor:—As stated in an editorial in The Journal, Aug. 13, page 1371, a difference of opinion has arisen with regard to the effect of therapeutic doses of cobaltous chloride upon thyroid function. I have recently been privileged to observe 10 members of an Italian family, 6 of whom have the hereditary leptocytosis trait to a greater or lesser degree. Each of these patients was given cobaltous chloride in dosages ranging from 25 to 100 mg. per day in the case of two children, aged 5 and 11; and 25 to 125 mg. per day in the instance of three adults, aged 26, 28, and 54. Experimental supplies of cobaltous chloride, furnished in 25-mg. enseals, were used during this study. Gastric irritation accompanied by vomiting was exceedingly common. In every instance, the anemia was improved during the period of cobalt administration. Iron was not given concomitantly. In several patients there was laboratory evidence of thyroid hypofunction. All of the family could not be assembled for physical examination. The subjects showed the following changes prior to and at the end of therapy, which extended from Jan. 25, 1954, to April 27, 1954.

Changes in Patients Given Cobaltous Chloride

Case No.	Age	Sex	Time of Measurement	Hemoglobin Level, Gm. per 100 Cc.	Protein-Bound Iodine, Mcg. per 100 Cc.	Total Cholesterol, Mg. per 100 Cc.	Cobalt, Mg. per 100 Cc.
1	26	F	Before treatment	8.3	4.6	182	0
			After treatment	11.3	3.6	191	40
			2 mo. after treatment	10.7	6.4	169	Tr.*
			3 mo. after treatment	9.1	6.2	230	0
2	11	M	Before treatment	10.8	5.4	...	0
			After treatment	12.2	1.8	241	Tr.
			2 mo. after treatment	12.4	6.2	209	0
			3 mo. after treatment	9.4	5.4	225	0
3	54	F	Before treatment	10.2	5.4	228	0
			After treatment	11.3	6.2	198	0
			2 mo. after treatment	11.0	6.2	183	0
			3 mo. after treatment	9.7	5.8	235	0

* Tr. = trace.

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FILTERS FOR RADIATION

To the Editor:—The readers of Dr. Kirsh's valuable article on "Radiation Dangers in Diagnostic Radiology" (*J. A. M. A.* **158:** 1420-1423 [Aug. 20] 1955) may arrive at the conclusion that the use of a filter can reduce the potential genetic damage caused by diagnostic roentgen studies (if such exists). It is of the utmost importance to point out that this is unfortunately not the case. Radiation can produce genetic changes only when it reaches the testes, ovaries, and perhaps the uterus of a pregnant woman. The filter recommended absorbs mainly the superficial component of the x-rays and—in oversimplification—substitutes for the patient's skin. A filter as described in the article reduces thus the x-ray dose to the first few millimeters of the patient's tissues but not to organs located at a greater depth. Though there might be a slight reduction of the dose to the most peripheral regions of the testes, there is certainly none elsewhere in the testes or anywhere in the ovaries when an aluminum filter of 1 to 3 mm. thickness is used. Employment of significantly heavier filters does not help either because adequate blackening of the radiographic film can then only be obtained if one increases the exposures. This cancels any beneficial effect of additional filtration. This statement does not detract from the general value of filters in reducing skin exposure and, indeed, here at this institution almost all diagnostic x-ray machines are equipped with a copper filter of 0.1 mm. thickness for this reason, whereas the fluoroscopes possess an aluminum filter of 3.0 mm. thickness, which serves the same purpose.

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BUSINESS PRACTICE

The American Medical Association and the Sears-Roebuck Foundation cooperatively have prepared a brochure entitled "A Planning Guide for Establishing Medical Practice Units." This publication contains practical suggestions on various phases of planning from selection of a site to arrangement of equipment and is available in the libraries of state and county medical society offices. From time to time parts of the brochure, slightly modified editorially, will be reproduced in the Business Practice section of The Journal.—Ed.

WHERE TO LOCATE A MEDICAL UNIT

Having selected the city, town, or small community in which you wish to locate, your first project is to look over the area carefully before selecting a site for your medical practice unit. The central business district, a residential shopping area, a new development, or perhaps a suburb are all possibilities. The selection depends upon your preferences and the type of your practice. A reliable realtor can advise about availability and values of building sites, buildings that can be bought and remodeled, and rental space that can be leased and improved.

If you have picked an area predominantly residential, it would be well to check with the local zoning commission, if one exists, or with the city council to find out whether your medical facility will be permitted. Learn the trends of the city. Avoid an area that will deteriorate or change character in the foreseeable future. If there are no zoning regulations, consider the reactions of your neighbors. Their attitudes can influence early success.

A hospital is generally an important adjunct to a physician's practice. Therefore, the following questions are among those you should ask yourself: Will patients receive better care if the hospital, with its additional diagnostic facilities, is close by? Will patients generally be sent to one hospital or will they be sent to several? Will your travel time between office and hospital be increased unreasonably? If no hospital is accessible would you have to provide emergency facilities?

Your medical facility should be easy for patients to find. It should be located near main arteries of traffic and preferably within a convenient distance to public transportation. Perhaps the ideal location would be a short distance from a main traffic artery, where the building housing your unit can be seen but still be far enough away that noise and traffic is not a problem.

No matter where the medical practice unit is to be located, make sure that the sewer, water supply, electric service, telephone service, and gas service are adequate. In the center of town these questions are largely academic, but they are of prime importance to a location at the edge of an urban area, in a small community, or in an old residence. Keep in mind the fact that if you are too far from any of these services the extension and connection costs can be excessive. Noise from industrial establishments and switch yards, fly and mosquito breeding grounds, and smoke and unsightly surroundings can have an important bearing on the success of your practice unit. Not only the present conditions but also the possible future development should be considered.

MEDICAL FILM REVIEWS

BCG Vaccination Against Tuberculosis: 16 mm., color, sound, showing time 19 minutes. Produced in 1954 by Olympus Productions, Cincinnati, for the American Trudeau Society of the National Tuberculosis Association and the Research Foundation. Procurable on loan or purchase ($147.50) from Research Foundation, 70 W. Hubbard St., Chicago 10.

This film tells of a young doctor who visits a senior physician to ask many questions and learn about BCG vaccination against tuberculosis. The older doctor tells the young physician that he has been using BCG at the hospital for many years and shows his visitor the actual tuberculin testing and BCG vaccination of student nurses. During this demonstration, it is shown how freeze-dried BCG is prepared for use. This vaccine is shown to be standardized and stable. The multiple puncture disk method of vaccination is demonstrated in detail, and it is shown to be simple, effective, and painless and a method that eliminates complications following vaccination. The doctor explains the approved role of BCG vaccination in a complete tuberculosis program and presents the results of carefully controlled studies in the United States as well as some of the results of BCG vaccination throughout the world. The recommendations of the American Trudeau Society for the use of BCG vaccine are presented. This film is recommended for physicians who are interested in tuberculosis control, especially those dealing specifically with the health problems of student nurses, interns, residents, or groups where exposure is greater due to the high incidence of tuberculosis in the local population.

Nurse Please: 16 mm., color, sound, showing time 28 minutes. Sponsored by the National Association for Practical Nurse Education, New York. Produced in 1954 by and procurable on rental ($4.50) or purchase ($140) from Trident Films, Inc., 510 Madison Ave., New York 22.

This is the story of a young mother who, almost by accident, becomes interested in practical nursing and finally achieves a career in this field. Jean Markel is a widow whose only child is the victim of fragilitis ossium. A talk with the director of nurses at the hospital where her son is a patient helps Jean to decide to apply for training in the hospital school of practical nursing. This film then goes on to outline the basic course and fields of study in practical nursing after her application is accepted. In addition, the many opportunities open to practical nurse graduates are reviewed. There is a little too much emphasis on the personal problems of the main character instead of on the training itself; however, this does show that the demands of everyday life need not stand in the way of a practical nursing career. It should be emphasized that the training is given by professional people and not by other practical nurses. When accompanied by appropriate written material or when introduced by someone who is familiar with the field of practical nursing, this will be a valuable film in recruitment and could be shown to women's clubs, PTA groups, and high school students.

Good Health Practices: Part II: 16 mm., color, sound, showing time 10 minutes. Produced in 1953 by and procurable on purchase ($90) from Avis Films, Inc., 904 E. Palm Ave., Burbank, Calif.

The purpose of this film is to instruct primary and elementary grade children in basic good health practices in regard to teeth, eyes, ears, nose, and posture. Judy and Jim's good health practices are portrayed in the course of a vacation day spent at the beach and at home. Before going to the beach, Judy pays a routine visit to her dentist, who confirms the results of her good dental practices. At the beach, the dependence upon mouth, eyes, ears, and nose for enjoyment of the simplest pleasures is shown. Later, at home, the children continue their good health practices while watching television, studying, eating, and going to bed.

Mistaken impressions and, at times, even incorrect ones are given. For example, blowing the nose one side at a time is recommended in the film, and the old fallacy that carrots are good for the eyes is presented. The photography is well done. The over-all ideas are good; however, the lack of medical and health consultation is evident. Even though many of the concepts may be right, the film is misleading because of this lack of consultation.

Drug Addiction: A Medical Hazard: 16 mm., color, sound, showing time 29 minutes. Prepared by Hon. H. J. Anslinger, Commissioner of Narcotics, Washington, D. C., and Dr. John C. Krantz Jr., University of Maryland School of Medicine, Baltimore. Produced in 1955 by Stark Films. Procurable on loan from Winthrop-Stearns, Inc., 1450 Broadway, New York 18.

This film begins with a lecture by Commissioner of Narcotics Harry J. Anslinger. He emphasizes the fact that narcotic drug addiction is many times more frequent in the medical and paramedical professions than in any other group. The greater part of this dramatic presentation portrays the life of a young physician who becomes an addict. The case history is taken from Mr. Anslinger's files. The signs and symptoms in the onset and course of addiction are not explained in an accepted medical frame of reference. One of the main points about drug addiction, namely, the fact that the addict generally has a psychogenic defect, is not mentioned. The film has a number of good points and carries a definite lesson; however, it should be shown to students in informal gatherings such as fraternity meetings rather than as a formal part of instruction in medical school.

Radioisotopes: Their Application to Humans as Tracer Studies and for Therapeutic Use: 16 mm., color, sound, 25 minutes. Produced in 1953 by and procurable on purchase ($335) or rental ($25) from Medical Film Guild, Ltd., 506 W. 57th St., New York 19.

This film gives a comprehensive review of up-to-date practices in the use of radioisotopes in a visually pertinent fashion. Tracer studies and therapeutic methods of application directly to the patient show the use of radioactive iodine, sodium, iron, calcium, lanthanum, strontium, cobalt, phosphorus, gold, and the neutron capture therapy involving boron for treatment of brain tumors. The film shows actual photographs of the techniques employed in administering these substances. It does not emphasize the methods used for protecting personnel. Neither does it make clear certain fundamental distinctions such as the distinction between gamma and beta radiation; however, it is a good over-all view of the subject, and the demonstration of techniques is well done. It will give the uninitiated general practitioner a graphic idea of what can be done and is being done with radioisotopes in clinical medicine.

NEW FILMS ADDED TO A. M. A. MOTION PICTURE LIBRARY

William Harvey and the Circulation of the Blood: 16 mm., black and white, silent, showing time 48 minutes. Produced in 1928 by the Royal College of Physicians, London. Procurable on loan (service charge $3) from Committee on Motion Pictures and Medical Television, American Medical Association, 535 N. Dearborn St., Chicago 10.

This film was prepared on the occasion of the 300th anniversary of the publication of "Exercitatio Anatomica de Motu Cordis et Sanguinis." The numerous essential procedures are carried out whereby Harvey convinced himself that the blood moves through the body in a circular manner rather than by surging to and fro. The procedures illustrated involve demonstrations on dissected human material, on living animals, and in the normal human living subject. The diversity of animals used would make it expensive to duplicate these experiments as lecture demonstrations, and the careful lighting, choice of human subjects, and the closeup views afforded by the camera make the human demonstrations superior to what would be afforded in ordinary lecture demonstrations. The emphasis throughout is on the actual text of Willis' translation of Harvey's book and on the anatomic and physiological material. This film is of special interest to students of medicine and to interns in that it demonstrates how much can be done with careful observation and very little apparatus. The archaic style of Willis' translation will make this film hard for some to follow; however, it could be seen profitably by every medical student at some time in his career. It should be shown to classes in physiology in the freshman or second year of medicine and again in the clinical years. The film will also be of value to those interested in the history of medicine.

Videclinic: Mind and Medicine: 16 mm., black and white, sound, showing time 46 minutes. Produced in 1955 by the Smith, Kline & French Medical Television Unit, in cooperation with the American Psychiatric Association and the American Medical Association. Procurable on loan (service charge $3) from Committee on Motion Pictures and Medical Television, American Medical Association, 535 N. Dearborn St., Chicago 10.

This film is a Kinescope of a program originally produced for closed-circuit television that outlines the problem of mental illness and the latest weapons developed to fight it. The research aspects of mental illness, including the use of lysergic acid to produce symptoms in normal and abnormal people for study purposes, are covered first. Next is shown the dramatic new uses of drugs in the treatment of mental disease, and finally there is a report on the "open ward" system and "therapeutic communities" directly from Belgium and England. This film is recommended for medical society and hospital staff meetings.

The Doctor Examines Your Heart: 16 mm., black and white (cleared for television), sound, showing time 11 minutes. Produced in 1955 with the cooperation of the American Heart Association by Bray Studios, Inc., New York. Procurable on loan (service charge $2) from Committee on Motion Pictures and Medical Television, American Medical Association, 535 N. Dearborn St., Chicago 10.

This film demonstrates the methods used by the physician in examining the heart and includes medical history, percussion to determine heart size, listening to the heartbeat with a stethoscope, determination of blood pressure and pulse rate, fluoroscopic examination, and use of the electrocardiogram. The purpose of the film is to show that, while the heart is the strongest organ of the body, it requires, like all mechanisms, a checkup in order to deal with inherent or developing irregularities. Logically, one should "service" the heart as one services an automobile or any mechanism that is in constant use. This interesting and attractive film is recommended for the general public. It will be useful to physicians who are called upon to speak on this subject to service clubs and can also be used in high school health education classes.

The Physiology of Reproduction in the Rat: 16 mm., color, sound, showing time 19 minutes. Prepared by Richard J. Blandau, M.D., and Anthony Canedo, University of Washington, Seattle. Produced in 1955 by the Department of Medical Illustration, University of Washington, supported in part by a grant from the Ortho Research Foundation. Procurable on loan (service charge $3) from Committee on Motion Pictures and Medical Television, American Medical Association, 535 N. Dearborn St., Chicago 10.

This film attempts to show the complete external and internal changes that may be observed during the reproductive cycle in the rat, including various reproductive phenomena such as running, mating behavior, and related ear quiver. An animated sequence is used to illustrate the significance of the cyclic changes observed in the vaginal smear. The opening scenes of the film contrast the behavior of the female rat during the period of estrus with her behavior between periods. The external behavior of both male and female during mating is well shown, and the time relations of the estrus cycle are set forth especially well. The sequences showing the changes in the external and internal genitalia of the female during estrus are good. A dramatic moment is shown when the ovum that is discharged by the ovary is seen to enter the oviduct. After that, time-elapse photography shows the penetration of the ovum by the spermatozoa. These pictures show modern microscopic and photographic techniques at their best and are at once attractive because of the use of color and instructive because of the careful planning and editing. The narration is good. This film deserves the highest praise and can be shown to nurses and medical students as a part of their courses in physiology. Physicians will be interested in seeing it as it shows the latest in photography and microscopy. Instructors in college classes in zoology, genetics, or physiology will welcome the film as a rather complete presentation of the essence of reproductive physiology.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Studies of the Physiology of the Dumping Syndrome. K. E. Roberts, H. T. Randall, H. N. Bane and others. New York J. Med. 55:2897-2902 (Oct. 15) 1955 [New York].

Sixty experiments were carried out on 34 patients who had undergone gastrectomy to study the alterations in blood volume, extracellular fluid, and blood pressure after the ingestion of various foodstuffs consisting of hypertonic glucose, carbohydrates given in the form of corn starch or cooked potatoes, protein given in the form of beefsteak or as a powdered commercial preparation, and fat given in the form of vegetable oil or a commercial homogenized preparation. The patients showed at least three major metabolic defects, i. e., severe dumping symptoms, inadequate caloric intake, and defective fat and nitrogen absorption. The experiments indicated that the dumping symptoms are associated with an acute decrease in circulating blood volume and extracellular fluid, a decrease in blood pressure, and electrocardiographic changes consistent with myocardial ischemia. It has been postulated that the acute alterations in blood volume and electrocardiographic changes are triggered by rapid enzymatic hydrolysis of foodstuffs within the jejunal lumen and a subsequent breakdown of larger molecular particles into their smaller molecular components with a corresponding increase in osmolarity. As a result of the increased osmolarity, extracellular fluid is shifted into the jejunal lumen in an attempt to maintain the jejunal contents isotonic with the plasma. Carbohydrate substances were observed to have a greater effect than protein in triggering this chain of reactions. A dietary regimen has been proposed that is based on these findings and consists essentially of a high-protein, low-carbohydrate diet given at frequent feeding intervals. Preliminary results indicate that patients placed on this diet gained weight and showed symptomatic improvement.

Peptic Ulcer in Laennec's Cirrhosis. W. P. Swisher, L. A. Baker and H. D. Bennett. Am. J. Digest. Dis. 22:291-294 (Oct.) 1955 [Ft. Wayne, Ind.].

Of 417 patients with Laennec's cirrhosis, 58, or 13.9%, had peptic ulcer in addition to their liver disease. Fifty-one had duodenal ulcers, and seven patients had gastric ulcers. X-ray evidence of duodenal ulcer was found in 47 cases. Postmortem examination revealed one healed duodenal ulcer and three active duodenal ulcers not demonstrated by x-ray studies. Gastric ulcer was diagnosed in six patients by roentgen examination and in one patient at autopsy. The presence of peptic ulcers in 13.9% of patients with Laennec's cirrhosis is far above the expected incidence of peptic ulcers in hospitalized patients. Sixteen or 28% of the 58 patients with hepatic cirrhosis and peptic ulcer were hospitalized because of hemorrhage from the ulcer. The physiological and pathological states present in cirrhosis may increase the predilection toward peptic ulceration. Possible predisposing factors are: absence or relative absence of neutralizing bile salts from the gastrointestinal tract, stimulatory effect of alcohol on hydrochloric acid secretion, direct inflammatory effects of alcohol on gastric and duodenal mucosa, increase of portal pressure and resultant venous stasis in bowel, malnutrition and altered serum proteins, impairment of the steroid metabolism, and finally psychosomatic phenomena. A combination of several such factors probably accounts for the increased incidence of peptic ulcer. Most important seem to be the direct stimulating and irritant action of alcohol, absence of neutralizing food, and perhaps a decrease in flow of bile salts and underlying psychiatric disturbances. No evidence was found in this series to incriminate portal hypertension, hypoproteinemia, or hyperbilirubinemia. This study indicates that one cannot assume that hematemesis or melena in a patient with Laennec's cirrhosis is always due to a ruptured esophageal varix. The common coincidental finding of peptic ulcer with Laennec's cirrhosis makes it imperative that an accurate diagnosis be made as soon as possible in any patient with Laennec's cirrhosis who is bleeding from the gastrointestinal tract.

Relations of Type of Tumor and Localization of Bronchial Carcinoma to Pulmonary Ventilation and Changes in Their Relationship by Exogenous Influences (Chronic Bronchitis, Pneumonia, Smoking). B. Löhr and A. Wagner. Arch. klin. Chir. 280:592-608 (No. 6) 1955 (In German) [Berlin Germany].

The clinical data of 435 patients with bronchial carcinoma admitted to the surgical clinic of the University of Heidelberg, Germany, between 1947 and 1953, were studied in an attempt to draw conclusions from them concerning the origin of the disease. Because of the many factors involved and of the possibility of their combinations, the authors searched for unequivocal and constant features. Localization of tumor and type of tumor were observed as being suitable in this regard. Comparison of the localization of the tumors with pulmonary ventilation showed a parallelism in that, in 51% of the patients, the right lung and its bronchial branches were involved by carcinoma, and in 49% the left lung was affected, while the ventilation of the right and the left lung took place in a ratio of about 54 to 46. The percentage distribution of tumors thus corresponded with the respective sections of the lung. This correspondence between involvement by tumor and ventilation was observed likewise with regard to pulmonary lobes and various sections of the bronchial tree. It was therefore concluded that a cause and effect relationship exists between ventilation (i. e., inhalation of carcinogenic noxae) and involvement by tumor. Furthermore, it was found that, with the same percentage of involvement by tumor, the squamous epithelium carcinoma occurred more frequently in the central portions of the bronchial tree while the small cell carcinoma occurred more frequently in the peripheral portions of the bronchial tree. It was assumed that this relationship between localization of tumor and type of tumor would be changed with respect to the percentage of involvement by tumor as soon as exogenous stimuli of sufficient intensity occurred. Chronic bronchitis, pneumonia, and smoking were considered as such stimuli, and their effect on the relationship between localization and type of tumor was studied. For each of these three groups of patients a special predilection with regard to localization of the tumor was found, and predominance of squamous cell carcinoma was definitely shown in the group of patients with bronchitis and in patients who smoked. These findings confirmed the concept that the development of bronchial carcinoma depends essentially on exogenous stimuli; it was shown simultaneously that it can no longer be denied that bronchitis, smoking, and pneumonia play a part in its causation.

Insensitivity to Vitamin D Developing During the Treatment of Postoperative Tetany: Its Specificity as Regards the Form of Vitamin D Taken. C. E. Dent, C. M. Harper, M. E. Morgans and others. Lancet 2:687-690 (Oct. 1) 1955 [London, England].

The authors present the histories of four patients in whom, after the accidental surgical removal of the parathyroids during operations on the thyroid, there developed chronic hypocalcemic

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The place of publication of the periodicals appears in brackets preceding each abstract.

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tetany. All showed a greatly increasing insensitivity to the hypercalcemic action of calciferol, even though the patients had been free of symptoms and normocalcemic before on smaller doses. When, instead of calciferol, the same or smaller doses of dihydrotachysterol (A. T. 10) were given to three of these patients, or of vitamin D_3 to the fourth patient, the symptoms of tetany were rapidly relieved and the plasma calcium level rose rapidly to normal. All of the patients are now well maintained on relatively small doses of the substituted vitamin D preparations. In two patients the change from calciferol to dihydrotachysterol and from calciferol to vitamin D_3 was carried out under metabolic control. This showed that the change of vitamin D preparations coincided with the onset of normal vitamin D action. It seems probable that, in the future treament of postoperative tetany, it will become necessary to change from one form of vitamin D to another. This curious phenomenon is likely to have some bearing also on the pathogenesis and treatment of those various forms of bone disease that include so-called "resistance to vitamin D" as one of their features.

A Thyroid Blocking Agent as a Cause of Endemic Goitre in Tasmania: Preliminary Communication. F. W. Clements. M. J. Australia **2**:369-371 (Sept. 3) 1955 [Sydney, Australia].

The results of two goiter surveys in Tasmania at an interval of five years and subsequent investigations strongly support the hypothesis that a significant amount of the endemic goiter in that state is due to the blocking effect of a substance or substances present in the diet of children. After a goiter survey in 1949 of some 8,000 school children, which confirmed that most of the island was goitrous, tablets containing 10 mg. of potassium iodide were distributed weekly to school children in Tasmania for the next five years. The second survey in 1954 showed a fall in the incidence of goiter in children of all ages in two districts, and in older girls in most districts; but there was a considerable rise in incidence in the younger children in most of the island, and the rate for boys equaled that for girls. This increase had occurred even in those schools where the distribution of iodine tablets was regular and complete. In the five years between the surveys, there was a considerable increase in milk consumption by children in Tasmania, owing to the introduction of the Commonwealth government's free milk scheme. To meet the demand for extra milk, a number of changes were made in dairy practice, including a great increase in the production of a forage crop, chou-mollier (thousand-headed kale), which is one of the Brassicæ. In view of the discovery by Astwood and his co-workers that some Brassicæ contain an antithyroid substance—namely, *l*-5-vinyl 2-thiooazolidone—it was decided to test for antithyroid activity milk, and extracts from milk, from cows fed chou-mollier and other Brassicæ. Tests were made with radioactive iodine, I^{131}. Two girls who drank the milk from cows fed chou-mollier had definite interference with the uptake of the I^{131} compared with the uptake of three other girls. A pair of identical twins was used, one in each group. Similar results were obtained in tests on other subjects with whole and skimmed milk, and to a lesser extent with various extracts. The investigation of milk from cows fed various Brassicæ is proceeding, and attempts are being made to obtain the antithyroid substance in a highly concentrated or pure form.

Tonsillitis and Splenomegaly. P. G. Cronk and P. G. I. Stovin. J. Roy. Army M. Corps **101**:231-234 (July) 1955 [London, England].

Nineteen of 185 British soldiers and their wives admitted to a hospital in the Suez Canal Zone with tonsillitis were found to have degrees of splenomegaly easily detected by routine palpation. Only in five cases was there adenopathy apart from tonsillar adenitis. Seven of the patients had had jaundice in the past, and one had had malaria. The clinical picture of tonsillitis, splenomegaly, and in a few cases cervical lymphadenopathy is rather suggestive of the anginose type of glandular fever, but white blood cell counts, blood film examinations, and repeated Paul-Bunnell tests ruled out glandular fever. The authors suggest that the probable connection between the tonsillitis and the splenic enlargement is the removal of neutralization of absorbed streptococcic toxins by the spleen as the main organ in the reticuloendothelial system. They think that this may occur more frequently than is realized in tonsillitis, though a search of the literature has failed to reveal any references to this combination of signs.

Painful Non-Arthritic Disturbances of the Hand and Wrist. E. C. Toone Jr. and J. Kawchak. Virginia M. Month. **82**:441-443 (Oct.) 1955 [Richmond, Va.].

Many lesions besides arthritis may affect structures near the joints. The authors discuss three painful syndromes of the hand and wrist, which are rather frequent but are often not diagnosed for months or years. Each may be treated effectively with relatively minor surgical procedures. The first is DeQuervain's disease, which is a painful syndrome resulting from the thickening and stenosing of the tendon sheaths of the abductor pollicis longus and extensor pollicis brevis at the ligament of the styloid process of the wrist. Activities such as typewriting, knitting, fly casting, golfing, piano playing, and work on grinding and buffing machines, which place these tendons under stress, predispose to this condition. The predominant early symptom is pain over the radial styloid process, which may radiate down into the thumb or up into the forearm. The discomfort is usually constant. The Finkelstein test, which is almost pathognomonic, is carried out by abducting the thumb across the palm, flexing the fingers over the thumb, and then sharply deviating the hand to the ulnar side. When the test is positive, an excruciating pain develops at the styloid process of the radius. Surgical treatment is simple and effective. The dorsal carpal ligament and the common sheath of the abductor pollicis longus and the extensor pollicis brevis are incised under local anesthesia. If the thickening is marked, the portions forming the roof of the osteofibrous canal are excised partially or completely. The carpal-tunnel syndrome results from compression of the median nerve by the transverse carpal ligament of the wrist and the contents of the carpal tunnel. Sensory symptoms constitute the earliest clinical feature and are limited to the distribution of the median nerve. At first, numbness may be present only during paroxysms of pain, but later a permanent hypalgesia and hypesthesia may be present. If the involved wrist is held in flexion for 60 seconds, there may be rather marked accentuation of symptoms. Also, the sensory changes may be accentuated by percussion over the median nerve. Surgical treatment consists of sectioning the transverse carpal ligament, thus decompressing the carpal tunnel. A successful operation is usually followed by prompt disappearance of pain and paresthesias and restoration of normal motor function. The trigger-finger syndrome results from a stenosing tendovaginitis of the digital flexor tendons of the thumb or lesser fingers usually at the metacarpophalangeal or the proximal interphalangeal joint. A number of these patients will improve with immobilization. If no improvement follows three weeks' conservative treatment, the tendon sheath constriction can be released by a simple surgical procedure. None of these conditions responds to medication usually employed in treating arthritic lesions.

Insulin Resistance and Scarce Insulin Sensitivity in Pancreatic Diabetes: One Clinical Case. T. Chiarioni and E. Nardi. Gior. clin. med. **36**:1091-1114 (Aug.) 1955 (In Italian) [Bologna, Italy].

Resistance or low sensitivity to insulin in patients with pancreatic diabetes may be due to infectious disease and febrile episodes; formation of anti-insulin antibodies; markedly decreased hepatic functional activity; excess insulinasic activity; anterior hyperpituitarism; hyperadrenalism; or hypertonia of the sympathetic nervous system. The authors report the case of a 44-year-old man whose sugar level when first seen was 190 mg. per 100 cc. and who was not benefited by diet and insulin. After eight months the blood sugar level was 240 mg. per 100 cc. He was then hospitalized, and, despite a diet without carbohydrates and insulin administration, the glycosuria and acetonuria remained extremely high. A dose of 120 units of insulin and a diet containing 60 gm. of carbohydrates daily caused, after 20 days, the disappearance of the ketosis, but the glycosuria and the subjective symptoms remained unchanged. Comparing the quantity of carbohydrates ingested and that lost in the urine, it was evident that the ratio between the grams of carbohydrates utilized and the units of insulin administered was significantly below the ratio that is usually found in patients with uncomplicated diabetes. A cycle of 12 x-ray irradiations to the hypophysis (130 r per session) on alternating days and intramuscular administration of 5 mg. of testosterone caused the glycosuria to disappear, and the daily amount of insulin could be reduced. The patient was discharged and instructed to eat a diet like the one at the hospital and to continue with the same dose of insulin. This was a case of pancreatic diabetes aggravated by the patient's low sensitivity to the action of insulin. This aspect of the disease did not seem attributable to inactivation or destruction of insulin but rather to factors inherent in the neuroendocrine constitution of the patient, in particular to a moderate anterior hyperpituitarism and, even more, to hypercorticalism. A lability of the patient's neurovegetative tonus with a tendency to episodes of hypertonia of the sympathetic nervous system may have been a collateral factor.

A New Corticosteroid: Metacortandracin. L. de Gennes and B. Mathieu de Fossey. Presse méd. 63:1270-1273 (Oct. 1) 1955 (In French) [Paris, France].

Metacortandracin (prednisone) has an anti-inflammatory action greater than that of cortisone; the amount has been reported to be 2.5 to 4.6 times greater, depending on both author and patient. The drug has given good results in arthritis, ankylosing spondylitis, acute gout, arthrosis, rheumatic fever, asthma, disseminated lupus erythematosus, periarteritis nodosa, some of the milder dermatoses, and scleroderma. Fair results have been obtained in acute leukemia, lymphosarcoma, and lipid nephrosis. Metacortandracin is inert with respect to the sodium ion and therefore causes no retention of either sodium or water. Patients receiving this hormone do not have to be put on a low-sodium diet. Most authors agree that potassium supplements are not necessary either but that a diet rich in proteins will supply enough of this element to replace whatever small amount is depleted by the drug. Metacortandracin increases the amount of hydrochloric acid in the gastric juice more than does hydrocortisone, but it has little effect on gastric juice volume and none on uropepsin secretion. The hormone has some catabolic effect on tissue proteins, but this disappears after the first few days of treatment. It stimulates erythropoiesis and causes an increase in hemoglobin. It has the usual side-effects of hypercorticalism and psychic disturbance. In general, it appears that this new steroid can replace cortisone and hydrocortisone, except in the treatment of adrenal cortical hypofunction.

Treatment of Recurring Pyelonephritis. E. M. Blegen and H. N. Haugen. Tidsskr. norske lægefor. 75:603-606 (Sept. 1) 1955 (In Norwegian) [Oslo, Norway].

The importance is stressed of recognizing the origin of symptoms of urinary infection, such as frequent, painful micturition, fever, and pyuria, which in a large proportion of cases is a relapsing pyelonephritis. Decisive diagnosis depends on careful microscopic examination of the urine. In the intervals between relapses there may be no symptoms. Recurrence means flare-up of a surface process while at the same time a deeper process in the kidneys is active. Since late in 1952 the authors have treated recurring pyelonephritis with a combination of agents that exert their effect on both the surface processes and the deeper processes. Sulfonamide and sodium bicarbonate are given alternately with a mandelic acid preparation and ammonium chloride for two weeks' courses, respectively, and a total of eight weeks' treatment. Alkaline ash and acid ash diets are applied during the respective courses. In some cases 0.5 gm. of streptomycin was administered twice daily for five days simultaneously with sulfonamides. Up to the end of 1954, 30 patients (3 men, 27 women) were treated. Follow-up of 20 of these from 2 to 28 months after treatment ended showed 17 to be free from symptoms, with normal urine. There were no complications. Complete recovery cannot be expected in all cases: there may be a chronic glomerulonephritis complicated with pyelonephritis or the pyelonephritis may be so advanced that irreversible changes have developed in the kidneys.

Renal Biopsy in Glomerulonephritis and Nephrotic Syndrome. H. Gormsen, T. Hilden, P. Iversen and F. Raaschou. Nord. med. 54:1341-1348 (Sept. 1) 1955 (In Danish) [Stockholm, Sweden].

With regard to the purely practical value of renal biopsy in the diagnosis, differential diagnosis, prognosis, and treatment of glomerulonephritis, the authors conclude that the method, provided that the biopsy is ample enough to be considered representative, definitely establishes whether the clinical diagnosis is correct, definitely evaluates the gravity of a glomerulonephritis, estimates duration only fairly well, and determines whether there is an acute glomerulonephritis or an acute flare-up of a previously existing chronic glomerulonephritis, which is important in deciding the duration of confinement to bed. In patients with nephrotic syndrome, renal biopsies can give the etiological diagnosis. In cases of oligoanuria of vague etiology, the results of biopsy can be decisive in determining whether hemodialysis should be carried out. It is often impossible on the basis of clinical criteria alone to determine whether an oligoanuria depends on a grave acute or chronic glomerulonephritis, in which case hemodialysis must presumably be regarded as useless, or on an acute tubulointerstitial nephritis with intact glomeruli, in which case hemodialysis will sometimes be indicated.

Oral Hydrocortisone Therapy in Rheumatoid Arthritis: An Appraisal of General Results of Prolonged Administration. E. W. Boland. Ann. Rheumat. Dis. 14:232-237 (Sept.) 1955 [London, England].

Results of prolonged oral hydrocortisone therapy in 150 consecutive patients with active peripheral rheumatoid arthritis were analyzed. Treatment was continued for from 9 to 36 months. At the time of analysis, treatment had been discontinued in 24 patients for the following reasons: insufficient clinical response in 4, major complications in 2, complications unrelated to hydrocortisone in one, death from extraneous causes in 5, and remission in 12. The chief factors that influenced the success of therapy were the severity or activity of the disease and the duration of arthritis before treatment. At analysis, improvement was graded as adequate in 36% of patients with severe disease, 57% with moderately severe disease, and 88% with moderate disease. Results were more favorable when the arthritis was of relatively recent origin; the crucial duration was about two years, and thereafter as duration lengthened the proportion of adequate response lessened. As time went on, fewer patients showed adequate improvement. The disease was restrained satisfactorily in 72% at 6 months and in 59% at 18 months. Fifty of the 150 patients showed evidence of progression during the observation period. Although hydrocortisone is a valuable agent in the management of selected cases of rheumatoid arthritis, it is far from an ideal suppressive agent. Like cortisone, it has many shortcomings, chief among which are the hormonal side-effects, especially when dosage requirements are large; the tendency to aggravate certain coexisting pathological conditions; the development of unresponsiveness in some patients after prolonged administration; and the failure to prevent disease progression in an appreciable percentage of cases.

Acute Hemolytic Anemia in Infectious Mononucleosis: A Report of a New Case and a Review of the Literature. L. J. Kirkham. J. Iowa M. Soc. 45:525-530 (Oct.) 1955 [Des Moines, Iowa].

Eleven cases of infectious mononucleosis associated with acute hemolytic anemia were collected from the literature. A new case is described in an 8-year-old girl who had been ill for a week with malaise and fever. At the onset she had three or four erythematous papules scattered over her body, but they cleared completely within three days. She also complained of some mild pain in her right shoulder, and of mild upper abdominal pain. She was given 500 mg. of tetracycline (Achromycin), and on the evening of the same day she voided dark brown urine, and was admitted to the hospital. She voided similarly colored urine for the next four days. The patient was running a temperature of 103 F (39.4 C) and had a mild acute pharyngitis and definitely enlarged lymph nodes in all cervical areas and in the axillary, epitrochlear, and inguinal regions. The spleen was palpable 3 cm. below the costal margin but was not tender. The liver was tender and was thought to be slightly enlarged. The blood cell count showed 3,890,000 per cubic millimeter red blood corpuscles, 12,000 per cubic millimeter white blood corpuscles, 86% lymphocytes, and 11% hemoglobin on the first day after admission, and 4,060,000 per cubic millimeter red blood corpuscles, 18,500 per cubic millimeter white blood corpuscles, 95% lymphocytes, and 11.5% hemoglobin on the fourth day after admission. Most of the lymphocytes observed in the patient's blood smear were considered typical of infectious mononucleosis. The treatment she received was essentially symptomatic, and in addition bed rest and 1 gm. of chloramphenicol (Chloromycetin) daily for five days. The patient was thought to be the first with infectious mononucleosis in whom hemoglobinuria occurred. She made a complete recovery. Although several of the previously reported 11 cases failed to satisfy the criteria completely, it is felt that hemolytic anemia unquestionably does occur in infectious mononucleosis and, further, that it is increasing in frequency. Most of these patients did not require special treatment, but some responded well to the steroid hormones, and one recovered promptly after splenectomy without a therapeutic trial of hormones. The mechanism of the hemolysis has not been clarified very much by the immunologic studies that were done. The hemoglobinuria that occurred in the author's case strongly suggested an intravascular hemolytic process, while the rapid response to splenectomy seen in another case supported the concept of hypersplenism and, therefore, an extravascular hemolytic process. Another concept is that of the production of hemolytic immune bodies, which was supported by the response of several patients to steroid hormones and also by the author's patient with hemoglobinuria. It seems that the possible mechanisms of hemolysis may differ from patient to patient, depending on the patient's previous exposure to antigenic agents. The increased incidence of hemolysis associated with infectious mononucleosis coincided with the advent of potent antibiotic agents, and, although more studies are required before antibiotics can be pointed out as the cause, it is felt that they may be to blame.

Variola in France in 1955: Epidemiology and Prophylaxis. B. Le Bourdellès, M. Berger, M. Rodallec and others. Presse méd. **63:**1247-1248 (Sept. 24) 1955 (In French) [Paris, France].

France has had eight epidemics of variola since the second world war. Three of the first five were known to have originated from carriers coming from North Africa, but the last three were brought from the Orient. The 1955 epidemic in Brittany was started by a French soldier on leave from the war in Indochina; it comprised 95 frank cases, with 20 deaths, and 11 abortive cases. The first cases were difficult to diagnose because of the protean nature of the disease developing in a semi-immunized population. There were many atypical and uneruptive forms. The extreme contagibility of the disease testified to the especial virulence of the far eastern virus. Importation of this virus is likely to become increased, by virtue of the enormous expansion of air travel. Prophylactic measures should, therefore, be practiced with greater strictness.

Systemic Blastomycosis: Report of a Case. V. H. Knight Jr. and W. W. Wilson. J. Florida M. A. **42:**275-277 (Oct.) 1955 [Jacksonville, Fla.].

The authors present the history of a 56-year-old man, who one year previously had noted the onset of exertional dyspnea, a mild nonproductive cough, and a wart-like growth on the right cheek. Later this skin lesion ulcerated, and a biopsy revealed double contoured bodies compatible with blastomycosis. A cutaneous lesion developed also on the wrist. Roentgen examination of the chest revealed a diffuse, bilateral, granular and nodular infiltration. Smears made from the skin lesion and the sputum showed Blastomyces dermatitidis, and this finding was confirmed by mycologic culture. Despite abnormalities in the hepatic and renal functions, the authors resorted to treatment with stilbamidine. The recent introduction of 2-hydroxystilbamidine is an advantage, as it is less influenced by sunlight than is stilbamidine. The drug is administered intravenously, usually in doses of 150 mg. dissolved in 500 ml. of 5% glucose. The drug is administered daily, until a total dose of 3.5 to 4.6 gm. is reached. The man whose history is presented received a total of 4.2 gm. of stilbamidine in a period of 30 days. He showed slow but progressive improvement. Nine months after the completion of treatment he felt well, except for a mild disturbance in the sensory portion of the trigeminal nerve, which, however, has slightly improved since its first appearance three months after treatment. This case illustrates the effectiveness of stilbamidine in a highly fatal disease.

Nephritis Without Albuminuria (Acute Postinfectious Angiopathy). G. Czoniczer and T. Zsótér. Ztschr. ges. inn. Med. **10:**748-752 (Aug. 1) 1955 (In German) [Leipzig, Germany].

Of the four classical symptoms of diffuse glomerulonephritis (albuminuria, hematuria, edema, and hypertension), albuminuria is generally regarded as the most constant. Some authorities regard the diagnosis of acute nephritis as doubtful if albuminuria is absent. Among 30 patients with acute nephritis observed by the authors in the course of three and one-half years, there were 4 in whom albuminuria was absent. These patients ranged in age from 14 to 31 years. All four had had another disease from 3 to 14 days before the onset of the nephritis; one had had a "cold," two tonsillitis, and one sore throat. Edema and hypertension were present in all four, hypertension always persisting for from two to three weeks or even longer. Edema was usually of moderate degree and seemed limited to the face. In one patient the edema was latent, becoming apparent only as the result of treatment, which resulted in diuresis and loss of weight. Fasting always counteracted the edema in the course of about one week. That these patients actually had nephritis was demonstrated by the characteristic forms of hypertension and edema and by the fact that, in the later course of the disease, albumin always appeared in the urine, at least in small amounts. The authors suggest that this form, in contradistinction to the classical form of glomerulonephritis, could be designated as "acute postinfectious angiopathy," because they feel that vascular changes are the chief characteristic of this form of nephritis.

SURGERY

Considerations in the Surgical Treatment of Ventricular Septal Defects. E. B. Kay, H. A. Zimmerman and F. S. Cross. J. Thoracic Surg. **30:**452-468 (Oct.) 1955 [St. Louis].

Patent ductus arteriosus, atrial septal defects, and ventricular septal defects all represent essentially the same type of physiological lesion, that is, one with left to right shunting of blood with overloading of the pulmonary circulation. Surgical correction in each of these defects may be deferred until the optimum time arrives for intervention, unless the patient is getting into severe difficulties. Severe clinical symptoms and cardiographic and x-ray changes in a patient with a ventricular septal defect, however, should be taken as an indication for early cardiac catheterization and, if the intraventricular and pulmonary pressures are found to be elevated, surgical repair of the defect should be seriously considered. The repair must be made before the vascular changes caused by pulmonary hypertension become irreversible if the patient is to be benefited. Increasing pulmonary and right ventricular pressures add to the risk of surgical intervention, but the dangers of waiting should always be weighed against the risk of the operation. All the factors, including the age of the patient, the period during which the elevation of the pressures has existed, the size of the heart, the degree of pulmonary vascularization (by x-ray), and the pulmonary reserve, must be taken into consideration. Six patients have been operated on by the authors in the last two years, two by closed techniques and four through an open cardiotomy. The first closed-technique operation, in which a ventricular septal defect was repaired by a suture method in a 20-year-old white girl, was successful, and the patient is now able to lead a normal life. A second closed-technique operation, performed on a 5-year-old girl, failed when fatal ventricular fibrillation developed. Cross circulation was employed in three of the open cardiotomy operations, with one successful closure and two deaths; in the other, no suitable donor was available, and an attempt was made to use a pump and a reservoir of oxygenated blood instead. Ventricular fibrillation developed, however, as soon as the ascending aorta was occluded, and a normal rate could not be restored. The many inherent difficulties encountered in attempts to repair ventricular septal defects by the open techniques now available make the continued investigation of closed techniques advisable. The principle of reconstituting the membranous ventricular septum by inversion and approximation of the pliable cardiac wall between the right atrium and aorta to the apical portion of the defect appears promising and is being utilized in all the closed techniques now being studied.

Experiences with Surgical Repair of Atrial Septal Defects. E. Watkins Jr. and R. E. Gross. J. Thoracic Surg. 30:469-491 (Oct.) 1955 [St. Louis].

The atrial septal defects found in 43 patients operated on by the authors, though varying greatly in size and shape, tended to fall into the following five general categories, according to their location in the septum: (1) the common atrium defect (2 cases); (2) the so-called ostium primum defect, which the authors prefer to classify as an endocardial cushion defect, because it is related not only to inadequate fusion of the primitive atrial septum with the endocardial cushions (the anlage of the mitral and tricuspid valve rings) but also to incorrect maturation of the endocardial cushions themselves (4 cases); (3) the inferior defect, which must be distinguished from the endocardial cushion defect (5 cases); (4) the midatrial marginal defect, which was the commonest type encountered (28 cases); and (5) the superior marginal defect (15 cases). The fact that serious conduction disturbances and death may occur when the atrioventricular conduction bundle is traumatized or cut makes the identification and avoidance of this specialized tissue a matter of vital importance. It will be found anterior to a line drawn between the valve of the coronary sinus and the central fibrous body—two landmarks within the atrial chamber that can be palpated at operation. Definition of the landmarks and connecting line is now performed routinely during the exploration of all atrial septal defects. The endocardial cushion defect may prove suitable for closure by external suture, but the associated valve deformity introduces serious problems after closure. The common atrium defect seems to require some kind of prosthesis or tissue graft to avoid atrial and valve-ring distortion. Defects in the other three categories, which are located along the posterior margin of the atrial septum, constituted 86% of those seen in these patients; they are best suited for closure by the external suture method. The atrial wall method is now reserved for use in malformations that cannot be closed by external suture, either because of their large size or because they are situated anteriorly in the septum. Defects lying near a caval orifice should be closed by sutures introduced into the heart through the left atrial wall to avoid constricting the caval orifices by suture. Postoperative management has sometimes been complicated by the appearance of transient left ventricular failure. A prophylactic regimen of fluid limitation is therefore applied to all patients during the immediate postoperative period, and digitalis and mercurial diuretics are given if failure develops. Arrhythmias are frequent during this period of failure. Six of the nine deaths that occurred among the first consecutive 22 patients were due to technical errors that experience has since shown to be avoidable. Deaths in the last 21 patients were limited to two patients with advanced pulmonary vascular obstruction and two with serious atrioventricular valve deformity. These conditions are now regarded as contraindications to valve closure by present methods. Clinical improvement in the surviving patients has been striking. All have reported increased exercise tolerance and relief of symptoms.

An Analysis of Fifty Patients Treated by Mitral Commissurotomy Five or More Years Ago. R. P. Glover, T. J. E. O'Neil and O. H. Janton. J. Thoracic Surg. 30:436-451 (Oct.) 1955 [St. Louis].

The first 50 consecutive patients in the authors' mitral commissurotomy series have been followed up, and the 41 survivors have been intensively studied in an attempt to ascertain their present subjective and objective status. All were operated on from five to six and a half years ago. Each of the 50 patients was suffering from some degree of functional incapacity; 20 had a definite history of rheumatic infection; 23 had a history of gross hemoptysis; 27 had had one or more bouts of congestive failure; and arterial emboli, from which a reasonable recovery had been made, had occurred in 6. Thirteen were in gross chronic congestive heart failure on admission to the hospital, and 19 were in permanent atrial fibrillation. Three patients died within the first postoperative month, and six died within the first three postoperative years. All the deaths occurred in patients with advanced stage 3 (progressively incapacitating) or stage 4 disease. Appraisal of the patient's subjectively reported clinical state and a correlation of the clinical findings, electrocardiographic tracings, teleroentgenograms, and catheterization data in each case warrant the conclusion that 30 (73%) of the survivors are in better condition and living a more nearly normal life than they were before the operation. The conservativeness of this estimate is shown by the fact that, according to their own and their family physician's appraisal of their present clinical status, 36 (88%) of the survivors are better now. No definitive conclusions concerning their present clinical status could be reached on the basis of their murmurs alone. Only 4 have a heart free from murmurs; 11 have lost all evidence of their original mitral diastolic murmur, but 14 now have mitral systolic murmurs of varying degrees that were not present before the operation. The best results from mitral commissurotomy are routinely obtained in patients with a pure murmur of mitral stenosis indicative of a small mitral orifice (cigarette size or less). Conclusive evidence of improvement does not regularly appear in the postoperative electrocardiograms, but electrocardiographic changes indicative of a definitive return to normal will be found in a considerable percentage of patients. Roentgenographic studies showed that, in 87% of these patients, the heart had remained at its preoperative size or had become smaller, whereas before the operation it was growing progressively larger. The functional state of the patients was paralleled and corroborated by all the cardiac catheterization data available. Valvular calcification was present before operation in 20 patients and in these the degree of improvement obtained, though satisfactory, was less than that obtained in those whose valves were free of calcium deposits. Eight patients showed definite evidence of rheumatic activity during the postoperative period. No evidence of restenosis has been observed in any of the surviving patients, nor was any present in the valves of those who died in the postoperative period. Only one patient had an operative embolus, and she has now completely recovered from her left hemiplegia, except for the finer motions of the hand. No postoperative emboli have occurred up to the present time. Commissurotomy has been of untold value to most of the patients in this series, and there is no reason to suppose that the improvement obtained will not continue.

Surgical Treatment of Coronary Insufficiency. J. N. Briggs and F. X. Byron. West. J. Surg. 63:559-561 (Sept.) 1955 [Portland, Ore.].

The authors present a history of the various attempts at myocardial revascularization, giving special attention to the three commonly used procedures: the cardiopericardiopexy of Thompson, the arterialization of the coronary sinus advocated by Beck, and Vineberg's internal mammary implantation. The authors favor the cardiopericardiopexy or pericardial poudrage of Thompson. It is technically simple, requiring little equipment and no specialized training. This operation utilizes all the available collaterals, the pericardiophrenic arteries, the internal mammary arteries, the inferior phrenic arteries, and the adjacent mediastinal vessels. Furthermore, this procedure has had the greatest clinical trial, and some of Thompson's patients have been followed for 14 years. The authors have used Thompson's method in eight cases. As regards the selection of patients for this treatment, they say that it should be used only after failure of medical treatment. The heart may be moderately enlarged, but patients in heart failure are not suitable candidates. There are no age limits, but there is more risk in younger patients. Operations should not be performed within three months of an infarct and preferably six months should have elapsed. Of the eight patients operated on by the authors, three have died, but only one of these was an operative death. It occurred on the sixth day after operation and was due to fresh infarction in a greatly narrowed coronary artery. This patient would not meet the present criteria for operation. The two late deaths were due to coronary infarction, but both patients had been improved by Thompson's criteria up until the time of death, 6 and 14 months after operation respectively.

Local Hypothermia of the Heart: Preliminary Report. D. Melina and C. Pollara. Gior. ital. chir. **11**:940-943 (Aug.) 1955 (In Italian) [Naples, Italy].

The authors' experiments with general hypothermia combined with a more pronounced local hypothermia of the heart were based on the fact that the "biological zero," i. e., the temperature limit at which point the specific functional activity of a cell ceases, of the myocardial tissue is much lower than that of the nervous tissues (30 to 24 C [86 to 75.2 F] according to the various zones). General hypothermia (rectal temperature of 28 C [82.4 F]) was rapidly induced in a group of dogs after they had been given deep Pentothal anesthesia. After the circulation was arrested by occlusion of the venae cavae, the azygos vein, the aorta, and the pulmonary artery, the heart was cooled directly by means of carbon dioxide, and its internal temperature, as measured with a regular thermometer after an atrial or ventricular cardiotomy, was lowered to 20 C (68 F). At this temperature, marked bradycardia (four to six pulsations per minute) was present. This method enabled the authors to interrupt the circulation for 30 minutes, during which time various surgical procedures were performed on the cavities of the heart. The authors state that the circulation can be interrupted in some cases for longer time (43 minutes in one dog) and that general hypothermia combined with more pronounced local hypothermia of the heart makes it possible not only to prolong the circulatory arrest but also to prevent the onset of a state of myocardial anoxia. Ventricular fibrillation, a much feared and often irreversible and fatal complication of general hypothermia, is also prevented.

Contralateral Pulmonary Metastases in Bronchial Cancer. A. Balmes and A. Thevenet. Presse méd. **63**:1297-1301 (Oct. 5) 1955 (In French) [Paris, France].

Five cases of contralateral pulmonary metastasis were noted in a series of 75 cases of bronchial cancer. A review of the literature showed that about 20% of bronchial cancers metastasize into the contralateral lung; only 10% are detectable radioclinically. Secondary cancer of the lung represents about 30% of cancer metastases in general. Recent figures show that the primary tumor is located in the bronchi in about 5% of cases. The circumstances of the clinical appearance of these metastases are of four types. 1. They may be noted at the time of initial examination revealing cancer or even before the primary tumor manifests itself. 2. They may be secondary metastases, i. e., manifesting themselves in the weeks following discovery of the initial lesion. In such cases, as in those of early metastases, the cancer has revealed itself late and is inoperable. 3. The metastases may appear late, after surgical treatment of the bronchial cancer. 4. They may be latent, in which case they are not found before autopsy. As to their route of propagation, it seems that they spread not only through lymph channels and blood vessels but also through the bronchi by aspiration. Most of the contralateral metastases are of the cavitary or epidermoid type. Radiologically, they are seldom miliary but often nodular, taking the form of multiple or isolated rounded opacities. As mentioned, the early and the secondary metastases are a bad prognostic sign, but late metastases in the contralateral lung are amenable to surgical therapy.

The Surgical Aspects of Portal Decompression. C. W. Hughes and E. J. Jahnke. Am. J. Gastroenterol. **24**:372-377 (Oct.) 1955 [New York].

Of 52 patients with portal hypertension who had end-to-side portacaval and splenorenal shunt operations, follow-up studies were completed in 30. Twenty-eight (93.4%) of the 30 patients had portal hypertension caused by intrahepatic block, and in only 2 (6.6%) was it caused by extrahepatic block. No patient was denied surgical intervention because of severe dysfunction of the liver. The first patients operated on had had hemorrhages from esophageal varices. Because of the highly satisfactory results of the operation in these patients, its indications were extended to encompass those patients with portal hypertension and extensive esophageal varices in whom hemorrhages had not occurred. Only 2 of the 30 patients had a shunt performed as a prophylactic measure. The direct portacaval shunt operation proved to be the procedure of choice, since a larger anastomosis can be obtained between the two systems by this method than by a splenorenal shunt, which is more difficult technically to perform and more time-consuming. Preoperatively, esophagoscopy was carried out routinely to determine size and extent of esophageal varices; manometric pressure readings were taken in the esophageal varices without complications. Techniques of portal venography and portacaval and splenorenal anastomoses are presented. Comparison of preoperative and postoperative manometric pressures taken in the portal vein showed a drop in portal pressure of over 200 mm. of sodium chloride solution after shunting procedures in most of the patients. Preshunt vena cava pressures were observed to range up to 220 mm. of sodium chloride solution; after the shunting procedures, the portal pressure equalized with the venacaval pressure and obviously could not be dropped below the initial venacaval pressure. Postoperative studies of the esophageal varices by esophagoscopy showed disappearance of some of the varices and decrease in size and pressure of others. When pressure readings were obtainable in the remaining varices, they were comparable to the pressure in the portal vein after the shunting procedure. While there appeared to be a correlation between the portal vein and esophageal varix pressures, there did not appear to be a correlation between size of the varices and tendency toward hemorrhage. Only two patients had minor hemorrhages from esophageal varices postoperatively, but both had demonstrable esophageal varices. Postoperative liver function studies showed temporarily increased dysfunction apparently related to anesthesia and operative trauma. Alterations in hepatic function, however, persisted only for 7 to 10 days. Only two patients died of liver failure as a result of surgery. The authors believe that maximum preoperative preparation, minimal anesthesia and operative trauma, minimal blood loss, and the use of chlortetracycline (Aureomycin) postoperatively for 10 days is responsible for keeping the mortality rate to a minimum and for the gratifying results thus far obtained.

The Medical Aspects of Portal Decompression in Cirrhosis. I. C. Plough. Am. J. Gastroenterol. **24**:378-383 (Oct.) 1955 [New York].

Portal hypertension and collateral venous pathways are frequently a late complication of cirrhosis, brought about by constriction of the intrahepatic portal bed by fibrosis and nodular regeneration of the damaged liver. Such patients may appear to have recovered completely from hepatic decompensation, only to bleed suddenly from esophageal varices. The only effective operations to reduce portal hypertension appear to be those in which a direct shunt is constructed from the portal venous system to the inferior vena cava or its branches. The source of bleeding should be accurately determined by x-ray and endoscopic examination. The nature of the liver disease and the specific location of the block in the portal system must be decided by careful, complete medical evaluation before the operation. Intractable ascites is not an indication for the shunt operation. Shunt operations may be done on patients with varices from which hemorrhage did not occur, but the value of the operation has not yet been established with statistical reliability, because very little is known of the natural history of esophageal varices. Severe impairment of liver function is a relative contraindication to operation. More than a slight degree of jaundice and depression of the serum albumin below 2 gm. per 100 cc. make the operation very hazardous. In such patients, the chances of recurrent hemorrhage must be balanced against the markedly increased operative mortality in coming to a decision. Patients selected for shunt operations demand very careful attention from the internist before, during, and after operation. Preoperative treatment consists of rest, proper diet, and withdrawal of alcohol.

There is no need for blood transfusion, which carries the hazard of homologous serum hepatitis, except after hemorrhage. Patients with severe liver damage are extremely susceptible to sedatives and narcotics, particularly morphine. These medicaments should be used in reduced doses or not at all. The duration of operation and anesthesia must be kept as short as possible. Hypotension must not be permitted to occur. Careful blood and fluid replacement is necessary. The routine postoperative use of chlortetracycline (Aureomycin) is recommended because of its reported good effect in hepatic coma. Conservatism is urged in ambulation of patients convalescent from operation. Because of recent evidence that high protein feeding is occasionally toxic after shunt operation, it is recommended that there be no forcing of the patient's protein intake.

Indications and Contraindications in Hypodermoclysis with Hyaluronidase in Surgery of the Digestive Tract. A. G. Weiss and L. Hollender. J. chir. **71**:673-686 (Oct.) 1955 (In French) [Paris, France].

Hypodermoclysis with hyaluronidase permits the use of the subcutaneous route of administration of parenteral fluid therapy, which is more physiological than the intravenous route. The authors have used it successfully over 300 times in patients who had had surgical interventions on the digestive tract. Hyaluronidase triples the rate of absorption of fluids administered subcutaneously, thereby eliminating local stagnation and distention. The rate of absorption is a function of the nature of the liquid injected. Isotonic sodium chloride solution of 9 per thousand penetrates more rapidly than 5% glucose solution, but the latter is absorbed faster than alcohol solution of 19 per thousand. Vitamin C, adrenoxyl, Phenergan, and other agents inhibit the effect of hyaluronidase and distinctly slow up the process of absorption. Macromolecular fluids injected subcutaneously with hyaluronidase are poorly absorbed. The method has certain definite contraindications. It should not be applied to patients whose metabolism is seriously disordered, those who are in acute or chronic shock or peripheral collapse, or those who need rapid increase of their circulating fluid volume. It is also not advisable in diabetics; patients with malignant disease; those with local infection or septicemia; those receiving corticotropin, cortisone, antihistaminics, or estrogens; those with certain dermatoses, notably eczema; those with cellular hyperhydration; and those with protein deficiency.

Early Post-Cibal Symptoms Following Gastrectomy: Aetiological Factors, Treatment and Prevention. W. M. Capper and R. B. Welbourn. Brit. J. Surg. **43**:24-35 (July) 1955 [Bristol, England].

In an attempt to collect reliable data on some of the controversial aspects of early postcibal symptoms in patients who have undergone gastrectomy, the authors sent a questionnaire to some 50 physicians and surgeons whom they knew to be particularly interested in gastric surgery. This paper is based on replies to these questionnaires, on recent publications, and on data secured by the authors themselves. They differentiate two types of early postcibal symptoms: the dumping syndrome proper and bilious vomiting. Early postcibal symptoms improve spontaneously during the first 12 to 18 months after operation; after this the incidence remains constant. Patients with extensive lesions at the time of operation tend to have less severe postcibal symptoms. Women on the whole fare worse than men. Postcibal symptoms are rare after gastroenterostomy. After gastrectomy there is no clear evidence that their frequency or severity bears any relation to the amount of stomach resected. An antecolic anastomosis possibly gives better results than a retrocolic. There is no evidence that a valve or the site of attachment of the afferent loop is significant. Postcibal symptoms are less persistent and less severe after a Billroth 1 anastomosis; loss of weight is less and colic and diarrhea are also less frequent, but the recurrence rate after the Billroth 1 procedure for duodenal ulcer is higher than it is after gastrojejunal anastomosis. In the initial stages of postcibal symptoms, explanation and reassurance are important. Careful analysis of dietary habits is valuable. Milk, sweet things, and food in liquid form may be causative factors. Meals should be taken dry and drinks only between meals. Lying down for half an hour before a meal greatly reduces bilious vomiting, and lying down to eat or for half an hour after food reduces dumping. Local anesthetics by mouth, hexamethonium bromide, and sodium bicarbonate, all before meals, may improve dumping symptoms. Bilateral paravertebral splanchnic block with procaine probably gives the greatest relief, which may be permanent. Surgical measures to give relief should be considered only when symptoms are severe and disabling and have persisted for at least 18 months after operation. Enteroanastomosis, jejunoplasty, and Roux-en-Y anastomoses usually relieve bilious vomiting, but relapse is common. As a primary procedure, the Roux-en-Y anastomosis prevents bilious vomiting. After any of these procedures, constant watch must be kept for recurrent ulceration. Support for the afferent loop and lesser curvature of the stomach may relieve or prevent dumping symptoms. Conversion to a Billroth 1 anastomosis usually relieves bilious vomiting, dumping symptoms, and diarrhea, causes increase in weight, and reduces fecal fat loss. Jejunal and colonic replacement of the stomach gives similar results, but jejunal ulceration is common after the former. In the present state of knowledge, conversion to a Billroth 1 is the procedure of choice for the surgical treatment of all types of postgastrectomy symptoms where a gastrojejunal anastomosis is present.

Operative Cholangiography. J. H. Gifford and S. C. Kahlstrom. West. J. Surg. **63**:605-606 (Sept.) 1955 [Portland, Ore.].

The studies reported were concerned with the proper evaluation of operative cholangiography. Two groups of cases, each consisting of 100 consecutive cholecystectomies for cholelithiasis, were investigated. All of these patients were operated on by a group of three surgeons who are associated as partners in the same office. In the first group, operative cholangiography was not used in any instance, and the decision to explore the common duct was based on palpation of a stone or the clinical indications of jaundice, dilatation and thickening of the duct, or a contracted gallbladder in patients with active symptoms. In this group the common bile duct was opened in 29 patients. Stones were found and removed in nine instances, while the remaining 20 patients had their ducts explored unproductively. In the second group, operative cholangiography was carried out in each instance, and the common bile duct was opened in 27 instances; 23 of these ducts were opened on cholangiographic evidence of stone, and stones were actually found in 21 patients, while in 2, air bubbles had been mistaken for stones. In the other four patients, in whom the cholangiogram showed no stones, the common duct was opened on clinical indications. Residual stones were proved in six patients and strongly suspected in another eight patients of group one, whereas in group two stones were left behind in only three patients. The authors conclude that the so-called clinical indications for common duct exploration are fallible and that they lead to exploration of the wrong ducts. Operative cholangiography is not infallible, but it is a more accurate method for determining the presence of common duct stones than palpation or clinical indications.

Surgical Treatment of Local Carcinoma Recurrences and Metastases, Respectively. H. Rosolleck. Arch. klin. Chir. **280**: 573-576 (No. 6) 1955 (In German) [Berlin, Germany].

Surgical treatment was practiced for local recurrences or easily accessible metastases in 22 patients, of whom 20 had been operated on previously for carcinoma of the breast, one for carcinoma of the penis, and one for carcinoma of the anus. The operation for local recurrences or metastases was preceded, in all of the patients, by a thorough clinical examination that definitely excluded the occurrence of generalized (distal) metastases. Extensive excision far into the healthy tissue is imperative. The survival time after the primary operation varied from 2 to 17 years, and the survival time after the operation for local recurrence or metastases varied from three months to six years. Because of the difficult conditions prevailing after the war, most patients did not receive irradiation treatment after the primary operation. When local recurrences or metastases were first observed, the patients first were referred to the roentgenologist for irradiation treatment, but irradiation alone failed to remove the tumor tissue and surgery had to be done. The fallacy of the statement made by some roentgenologists that surgical treatment preceding roentgen irradiation for local recurrence or metastases is not advisable because results of subsequent irradiation of scar areas are poor was demonstrated. Since life was considerably prolonged in some of the patients who underwent surgical treatment for local recurrence or metastases, the author pleads for surgical removal (with the exclusion of distal metastases) with subsequent roentgen irradiation, a method of management that is superior to that of roentgen irradiation alone. Hormone therapy does not seem to be appropriate in patients with local recurrence or metastases of cancer of the breast; it should be reserved for patients with generalized metastases in whom surgical treatment or roentgen irradiation is no longer feasible.

NEUROLOGY & PSYCHIATRY

Poliomyelitis Complicating Pregnancy. J. R. Bergquist and W. P. Sadler. Minnesota Med. **38**:668-673 (Oct.) 1955 [St. Paul].

Five hundred sixty-eight patients with acute anterior poliomyelitis were admitted to the contagion division of the Minneapolis General Hospital during the 1952 poliomyelitis epidemic. There were 88 women between the ages of 15 and 45 years, and 24 (27.3%) of them were pregnant. It has been estimated that between 6.2% and 11% of the female population in the child-bearing age will be pregnant at any one time. While the exposure rate was found to be higher in the nonpregnant woman than in the pregnant, the incidence of poliomyelitis in the pregnant women reported on by the authors confirms the statement by other workers that the attack rate is apparently higher in the pregnant woman. Three of the 24 women died, giving a maternal mortality rate of 12.5%, which is not greater than that in the nonpregnant women with poliomyelitis. Five of the 24 women aborted; giving an abortion rate of 20.8%, no higher than that expected for the general population. Of the 24 women, 12 were in the third trimester of pregnancy, 6 in the second, and 6 in the first. All three deaths occurred among the women in the third trimester. Eight of the women in the third trimester had the spinal paralytic type and four the bulbar spinal type of poliomyelitis. Of the six women in the second trimester, two had the nonparalytic type, three the spinal paralytic type, and one the bulbar type of the disease. Of the six women in the first trimester, four had the nonparalytic type and two the spinal paralytic type. Ten of the 12 women in the third trimester died or had severe residual paralysis. Thus, the most severe cases occurred in the last trimester of pregnancy, showing the varied picture poliomyelitis can present. Severe residual paralysis resulted in 8 (33.3%) of the 24 women, and mild residual paralysis in 7 (31.4%). There were four respirator cases in the entire group. Early tracheotomy, endotracheal suction, bronchoscopy, and positive pressure administration of oxygen greatly facilitated delivery in the respirator cases. The labor was conducted according to accepted standards. Most of the patients delivered spontaneously, and it was felt that labors were definitely less painful and shorter than in normal pregnant women; this might have been the result of relaxed perineal muscles and high pain threshold. Analgesic, amnesic, and sedative drugs are interdicted. Pudendal block with procaine was adequate anesthesia for most patients. Postmortem hysterotomy was unsuccessful to effect fetal salvage. Growth and development in surviving infants were normal.

The Clinical Response of Psychoneurotics to Chlorpromazine. M. Silverman. J. Ment. Sc. **101**:640-643 (July) 1955 [London, England].

Chlorpromazine hydrochloride, or Largactil, was given to 50 patients with psychoneurotic disorders in outpatient departments of general hospitals. Chlorpromazine was given in oral doses ranging from 25 mg. three times a day to 75 mg. three times a day. Approximately three-fifths of the patients gained substantial benefit from the treatment. Anxiety states showed a better response than the other diagnostic groups. This supports the view that the main effect of the drug is in the relief of tension. Some obsessional states showed material improvement. Some investigators suggested that obsessional patients should not undergo prefrontal leukotomy until chlorpromazine has been given a trial. Hysterical and depressive reactions did not respond well. Patients in the first four decades fared better than the older age groups.

Prolonged Sleep Treatment in Mental Disorders (Some New Psychopharmacological Considerations). H. Azima. J. Ment. Sc. **101**:593-603 (July) 1955 [London, England].

A prolonged state of sleep, approximating as much as possible the normal physiological state, was accomplished by the combination of different barbiturates and chlorpromazine (Largactil). The minimum daily sleep time was 20 hours, and the average duration of treatment, 25 days. This report is based on a study of 25 patients who were followed up for five months or more. These 25 patients had not responded to any other form of treatment, ranging from electric shock to long-term psychotherapy, and in each case the sleep treatment was used as the last resort. The group included eight patients with schizophrenia, two with manic depressive psychosis, three with obsessive compulsive neurosis, nine with mixed psychoneurosis, two with hysteria, and one with character neurosis. Improvement was noted in 60% of the cases. This improvement was based upon social and behavioral normalization. There were very few complications: two transitory maculopapular rashes; postsleep convulsive seizures in two patients, one being a recognized epileptic before treatment; and one case of pneumonia, which responded very rapidly to antibiotics. The following tentative list of indications for prolonged sleep treatment is proposed: neuroses, in particular conversion hysteria, anxiety hysteria, and borderline cases; hypochondriacal and psychosomatic syndromes; and schizophrenic reaction with preponderance of affective alterations. Patients with obsessive compulsive neuroses do not respond to sleep, and patients with mania respond to chlorpromazine alone.

Columnotomy in the Treatment of Unreduced Dorsolumbar Vertebral Fractures with Cord Lesions. G. J. Renes. Arch. chir. neerl. **7**:269-279 (No. 3) 1955 (In English) [Arnhem, Netherlands].

In Indonesia, where many hospitals are overcrowded and understaffed, inadequately treated traumatic injuries, such as cord lesions caused by unreduced vertebral fractures, are not uncommonly seen. Most of these injuries are caused by falls from trees. Twenty-three patients with persistent cord lesions caused by unreduced dorsolumbar vertebral fracture were treated surgically. Two are still in plaster jackets; in another patient the operation had to be discontinued because of simultaneous injury to the parietal pleura and severe hemorrhage from a lumbar artery, causing shock. Twenty patients remain for discussion. In seven of these only a laminectomy was carried out. This report is chiefly concerned with the 13 patients, who, after preliminary laminectomy, were treated by columnotomy and reduction of the spine. These patients were operated on from 5 to 27 months after the original injury. A columnotomy with reduction of flexion-angulation and posterior dislocation was carried out using La Chapelle's operation as modified by Allaart. Postoperative roentgen examination revealed that complete reduction was obtained in only one case; 2 remained unchanged, the other 10 cases showing reduction of flexion-angulation by an average of 14.4 degrees. Posterior dislocation in eight cases was completely reduced in two and partially reduced in six. Five patients were greatly improved, two were moderately improved, two slightly improved, three patients remained unchanged, and one patient became slightly worse. In this series clinical improvement appeared to be dependent on the degree of reduction of flexion-angulation. Serious delay in treatment did not worsen the results of operative reduction by columnotomy in these unreduced cases.

A Case of Transverse Myelitis Following T. A. B. Inoculation. T. P. H. McKelvey. J. Roy. Army M. Corps **101**:191-195 (July) 1955 [London, England].

The author presents the history of an 18-year-old soldier in whom a transverse myelitis of the cervical spinal cord developed 15 days after he received a second injection of T. A. B. (typhoid, paratyphoid A and B) vaccine. It was considered that the spinal cord lesion was probably a thrombosis affecting the cervical cord. The absence of other apparent cause of the transverse myelitis—e. g., trauma, syphilis, or other infection, bacterial or viral—and its relatively close sequence to his T. A. B. and other inoculations led to the consideration that it might be associated with those inoculations. Neurological sequelae after T. A. B. inoculation have been classified as syndromes of radiculitis, or plexitis, and mononeuritis, of polyneuritis and Guillain-Barré syndrome, of Landry's paralysis and myelitis, and of cerebral and meningeal forms. Such sequelae occur most commonly after a second inoculation. In the case described here, the immediate effect was upon the cervical spinal cord involving the fifth cervical to first thoracic segments with no evidence of cerebral, brain stem, or meningeal involvement. There was no further spread. Death did not occur, but recovery was far from complete, there being residual weakness in the muscles of the upper limbs, particularly those innervated from the eighth cervical and first dorsal segment, and slight spastic weakness of the lower limbs. It is now thought that the pathogenesis of such neurological complications after prophylactic inoculation is that of an anaphylactic reaction affecting blood vessels. Success in treatment of encephalomyelitis after rabies inoculations, where a similar mechanism has been postulated, has been reported with antihistamines and cortisone. Antihistamine drugs and cortisone were not used in the case reported here. However, it is felt that consideration should be given to their immediate use in all cases showing evidence of neurological lesions after prophylactic inoculation, especially where there is evidence of spinal cord involvement.

PEDIATRICS

The Pulmonary Hyaline Membrane Syndrome. S. S. Stevenson and L. E. Laufe. Pennsylvania M. J. **58**:1101-1103 (Oct.) 1955 [Harrisburg, Pa.].

The pulmonary hyaline membrane syndrome has shown a real and alarming increase in incidence in the last 15 years. It now seems to be responsible for half the total mortality among premature infants and for more neonatal deaths in all live-born infants than any other cause. The infant presenting this syndrome, usually born prematurely or by cesarean section or to a diabetic mother, has mild respiratory difficulty shortly after birth as if he had aspirated amniotic fluid. He then seems to be well for three or four hours, after which breathing becomes progressively more labored. Repeated roentgenograms show increasing diffuse haziness of the lung fields, and the infant becomes more and more cyanotic. Approximately 50% of such babies die, usually before they are 48 hours old. Microscopic examination of the lungs reveals extensive atelectasis, vascular congestion, and an eosinophilic hyaline-like membrane that lines occasional dilated alveoli and alveolar ducts. Experiments with guinea pigs have shown that, when amniotic fluid, which has a thromboplastin-like activity, is superimposed upon pulmonary edema, 20% of the animals exhibit the respiratory symptoms of the disease and present the complete syndrome at postmortem examination. It seems probable, therefore, that the human disease is produced when aspirated amniotic fluid becomes mixed with a pulmonary exudate. The formation of pulmonary exudate in human infants may be due to several causes, including irritation of the lungs by high concentrations of oxygen. This last may well be important, especially in premature infants. The increase in the incidence of the pulmonary membrane syndrome, which occurred simultaneously with that of retrolental fibroplasia, took place during the years in which incubators capable of maintaining high concentrations of oxygen became available. Further work on the origin of the syndrome should be directed toward elucidating the causes of pulmonary edema in the neonatal period. Certain practical suggestions for the prevention and treatment of the disease can, however, be made on the basis of present knowledge. 1. Place newborn infants in a prone position. They will not smother, and constant postural drainage will be established. 2. Aspirate the stomachs of infants born by cesarean section to free them from amniotic fluid and debris. 3. Restrict oxygen to the amount needed to preserve life and prevent cyanosis. The concentration of oxygen should never exceed 45%. 4. Observe all newborn infants for heart failure and proceed to rapid digitalization if failure appears. 5. Prophylactic antibiotic therapy should be given to every newborn baby with respiratory difficulty, especially when it is accompanied by atelectasis. 6. Be prepared to withdraw air from the pleural cavity if pneumothorax develops and makes it necessary. 7. Withhold food and parenteral fluids from infants with this syndrome until convalescence becomes obvious (usually within 48 hours). Cortisone, estrogen, and the fibrin-lysing substances are potentially dangerous and should be avoided. Bronchoscopy, which cannot remove foreign substances far down in the bronchial tree and which is traumatizing in newborn infants, should not be attempted.

Treatment of Thyrotoxic Children with Thiourea Derivatives: Long-Term Follow-Up and Recent Experiences. R. H. Kunstadter and A. F. Stein. A. M. A. Am. J. Dis. Child. **90**:373-380 (Oct.) 1955 [Chicago].

Thiourea derivatives have been used by the authors during the last 12 years in treating 13 girls and 4 boys aged 5 to 15 years for mild to severe primary hyperthyroidism. The results obtained in these children, nine of whom were first reported on in 1949, may provide answers to the following questions concerning the advisability of prolonged treatment with the thiourea drugs. 1. Is permanent "cure" possible? 2. What dose should be administered and how long should the drug be taken? 3. What is its effect on growth and development? 4. What happens to the size of the goiter and the exophthalmos? 5. What are the advantages of prolonged medical treatment? The original nine patients have been observed for periods ranging from 6½ to 12 years; follow-up in the other eight varied from 4 months to 6 years. All the patients were hospitalized at the time treatment was begun. They were ambulant and received sedation for sleep only when it was deemed necessary. They remained in the hospital until clinical improvement appeared and/or the basal metabolic rate began to fall—usually not longer than two or three weeks. Five patients in all underwent thyroidectomy—one because of a thyroid nodule suspected of being a neoplasm, one because of marked enlargement of the thyroid, one because of psychotic episodes and cardiac complications during early treatment, one, who was badly disturbed, because of poor cooperation, and only one because of drug failure. Eight of the 12 patients followed under medical treatment alone are in remissions that have lasted 5 years or more in six and from 2 to 5 years in two. Treatment in the other four patients is continuing. The eight patients in remission received treatment lasting from 6 to 36 months. They tolerated large doses, in most instances full adult doses, without evidence of intoxication. Indications are that large initial doses result in earlier response, lessen the likelihood of early relapses, and may shorten the duration of treatment. Growth and development, including sexual maturation, progressed normally through puberty into adulthood in all the patients followed in remission for long periods of time. Goiter and exophthalmos have disappeared completely in some patients; in others, small or moderate goiters or mild exophthalmos, or both, are still present. Treatment with thiourea derivatives can not only be expected to produce "cures" of five years or more in a large percentage of patients, but it may also make it possible to avoid the complications of surgical intervention and the disturbances of endocrine balance resulting from thyroidectomy.

Congenital Absence of the Spleen. D. W. Polhemus and W. B. Schafer. Pediatrics **16**:495-497 (Oct.) 1955 [Springfield, Ill.].

A case of congenital absence of the spleen accompanied by persistent atrioventricularis communis, pulmonary atresia, right aortic arch, and transposition of the heart to the right side; partial situs inversus involving liver, gallbladder, pancreas, stomach, and duodenum; and accessory lobe of the left lung is described in a newborn infant girl, who died suddenly when 7 days old. She was born by spontaneous cephalic delivery and weighed 3,240 gm. (7 lb., 2 oz.), and her respiration was spontaneous and without dyspnea. She had persistent cyanosis that increased with crying and activity and was not benefited by administration of oxygen. Heart sounds were heard best over the right side of the heart. There was also a soft heart murmur late in systole in this area. Agenesis of the spleen without other anomalies is excessively rare, whereas an increasing number of infants have been observed with certain specific anomalies in association with congenital absence of the spleen. This syndrome was originally described as including splenic agenesis, persistent atrioventricularis communis, partial situs inversus, accessory lobe of the left lung, and abnormal mesenteric attachments. In three cases of this type collected from the literature, a diagnosis of the syndrome was made before the patient died because of the findings of Heinz-Ehrlich bodies, or of Howell-Jolly bodies, target cells, and other abnormal elements in the peripheral blood of an infant with known congenital heart disease. Every baby having an obscure type of congenital heart disease should have peripheral blood studies with this syndrome in mind. If there are any of a variety of abnormalities observed in the blood, and particularly if fluoroscopy reveals transposition of the abdominal viscera, ante-mortem diagnosis of this syndrome can be made.

Defective Hemostasis: I. Hemophilia: A Pediatric Review. C. Weihl. Ohio M. J. **51**:983-985 (Oct.) 1955 [Columbus, Ohio].

Hemophilia, one of the classical hematological diseases of childhood, is no longer considered a single disease but a group of closely related diseases. The utilization or conversion of prothrombin into thrombin during the clotting process requires the presence of active thromboplastin in addition to the platelet factor and the tissue thromboplastin factor. Several substances normally present in the plasma contribute to the production of active thromboplastin. These substances have come to be known by several names; a deficiency of any one of them leads to a prolongation of clotting time and the clinical syndrome of hemophilia. The term of plasma thromboplastin factor A (PTF-A) is proposed for one of these substances and the clinical disease that occurs when it is deficient should be called hemophilia A. The other plasma thromboplastin factors, namely PTF-B and PTF-C, may be deficient and responsible for the defective clotting time, and the clinical syndromes caused by their deficiency should be called hemophilia B and hemophilia C. The diagnosis of hemophilia A (classical hemophilia) depends on a history of a characteristic hereditary pattern (sex-linked recessive trait), a finding of persistent bleeding in a male patient, usually beginning early in life, and the demonstration by laboratory means of a deficiency in plasma thromboplastin factor A (PTF-A or antihemophilic globulin). That the defect is caused by an absence of PTF-A is shown by mixing the patient's plasma with normal plasma and observing that the defect is corrected, whereas mixing the patient's plasma with plasma from a patient who is known to have hemophilia A fails to correct the defect. Hemorrhages will occur in spite of the most patient efforts to protect the child from injury. Their treatment requires, in addition to the usual local hemostatic measures, transfusion of fresh or frozen plasma in which the PTF-A, which rapidly deteriorates in blood stored in the fluid state, is retained for relatively long periods. The clinical syndrome caused by a deficiency of PTF-B cannot be distinguished from true hemophilia. It also seems to be inherited as a sex-linked recessive trait, occurring only in male patients. Ordinary laboratory tests again show prolonged clotting and decreased prothrombin consumption. Plasma of a patient with this disease readily corrects the defective clotting of patients with known hemophilia A, and vice versa. Since PTF-B, in contrast to PTF-A, is relatively stable in stored blood and plasma, patients with hemophilia B can be treated with a transfusion of ordinary stored blood. Hemophilia C differs from the A and B varieties in that it is inherited as a dominant trait and affects both males and females. The tendency to bleed is much less pronounced, and hemarthroses are rare. The clotting time may be either normal or prolonged, but impaired prothrombin utilization as in hemophilia A and B is shown by the prothrombin consumption test. Plasma from patients with this disease will correct the defect in clotting observed in patients with PTF-A and PTF-B deficiency, and vice versa. PTF-C, like PTF-B, is relatively stable, so that the patient with hemophilia C may be transfused with stored blood when necessary to promote coagulation.

UROLOGY

Latent Carcinoma of the Bladder. C. I. Cooling. Brit. J. Urol. **27**:221-223 (Sept.) 1955 [Edinburgh, Scotland].

The term latent carcinoma has been employed in cases in which the primary tumor is detected only at postmortem examination or not until after metastases have produced symptoms. The author presents two such cases. The first patient was a 53-year-old woman, who had had a swelling of the neck for about two years. It had increased rapidly in the previous eight months and had caused pain. Examination revealed a large mass of hard lymph nodes in the left supraclavicular fossa. This mass was fixed to the deep structures and was obviously malignant. A biopsy of the mass revealed a highly cellular carcinoma, but no opinion of the possible origin of the tumor could be suggested. Nasopharyngoscopy, bronchoscopy, and gastroscopy were carried out, but all failed to reveal any primary tumor in the accepted common sites of origin for such a metastatic tumor mass. The mass in the neck was treated by x-ray therapy as though it were a primary tumor, and in three months the mass resolved completely. Six months later, edema of the right leg developed and the right kidney became palpable, but the woman refused admission to the hospital for further investigation. A few days later she had a cerebral thrombosis from which she died. Postmortem examination revealed a hard, sessile, nodular tumor of the bladder, 3 cm. in diameter, around the right ureteric orifice, which had infiltrated through the whole thickness of the bladder wall. A chain of involved lymph nodes extended from the iliac vessels to the celiac axis. The second patient, a woman aged 72, complained of a lump on the chest wall. Histological examination after removal of the lump revealed a highly pleomorphic carcinoma, which was thought to be a metastasis from a carcinoma of the breast, but there was no evidence of such a tumor. Two months later, symptoms of frequency of micturition and hematuria led to studies on the urinary tract, which revealed a large tumor of the right wall of the bladder, which had infiltrated out to the pelvic wall. The woman died a month later. Each of these women presented histological evidence of deep infiltration and invasion of both vascular and lymphatic channels.

Hanging Bladder Stones Formed on Unabsorbable Suture and Ligature. J. H. Levack. Brit. J. Urol. **27**:239-241 (Sept.) 1955 [Edinburgh, Scotland].

While innumerable cases have been reported of foreign bodies in the bladder becoming thickly encrusted, no case of hanging stone as found in the two patients presented here could be found in the literature. In the first patient, a woman aged 42, cystoscopy revealed what seemed to be a calcified papilloma hanging from the anterior wall of the bladder. It was seen to be attached by a pedicle to the bladder wall. There was generalized cystitis. Suprapubic cystotomy disclosed that the calculus was attached to the bladder by a nylon suture. Part of this suture was incorporated in the calculus. The rest of the suture, which was buried in the bladder wall, was detached and the whole specimen was removed. The bladder was closed with catgut. Chemical analysis of the stone disclosed that it consisted entirely of phosphates. The history of this woman revealed that, at a sling operation about two years before, the technique of Millin had been followed, and nylon sutures had been used to transfix the two ends of the fascial slings above the bladder neck. One such stitch had eventually broken partly through the bladder wall at its inner surface. The second patient, a 60-year-old man, had undergone a transvesical prostatectomy. After the operation he felt well, but five months later he reported that lately he had had some bladder pain and frequency of micturition. Cystoscopy revealed a small calculus hanging from the scar area on the anterior wall of the bladder. The stone was voided on the day after the cystoscopy, and after that bladder pain and frequency ceased. Inspection of the specimen revealed that a small calculus had formed on a knot of linen thread. This stone also consisted entirely of phosphates. It is surmised that linen thread had been used for hemostasis.

The Male Gonorrhea "Carrier": Report of Seven Cases. J. B. Bittner and G. O. Horne. Brit. J. Ven. Dis. **31**:155-159 (Sept.) 1955 [London, England].

Gonorrhea is apparently becoming a much more innocuous disease in both sexes. The authors call attention to the male gonorrhea "carrier," a man who has the disease and is capable of transmitting it but who has no symptoms or symptoms so slight that they are ignored. Seven such cases were encountered in four years in a venereal disease clinic. The subclinical infection of the carrier can be diagnosed only by very thorough bacteriological investigation. When this condition is suspected, the investigations should include a stained smear and culture of at least one of the following: urethral scraping, urinary threads (if present), centrifuged urine deposit, prostatic secretion, and centrifuged prostatic urine deposit. The likelihood of success will obviously depend on the standard of techniques used, particularly for culturing the gonococcus. If the patient is symptom-free, more than one positive result should be sought if possible before a diagnosis of gonorrhea is made. A gonococcal complement fixation test should always be done in such cases, but this test has certain limitations, and it should not be relied upon for diagnosis. The importance of the male carrier should not be overrated, but in areas in which the incidence of gonorrhea is increasing or is not decreasing rapidly enough as a result of currently used methods of control, the possibility of male carriers contributing to the infectious pool (usually attributed to females) should be considered.

INDUSTRIAL MEDICINE

An Appraisal of Periodic Health Examinations. R. J. Bolt, C. J. Tupper and O. T. Mallery Jr. A. M. A. Arch. Indust. Health **12**:420-426 (Oct.) 1955 [Chicago].

Shortly after World War II, members of the department of medicine and the institute of industrial health of the University of Michigan Medical School and Hospital were approached by certain industrial organizations in the state of Michigan for the purpose of instituting routine annual checkup examinations for the executive personnel of the interested companies. The system adopted consisted of conducting all examinations on an inpatient basis. This was done for the following reasons: 1. It would afford the examinee a satisfactory examination without repeated visits on an outpatient basis. 2. It would afford a much closer physician-patient relationship and allow for the carrying out of indicated special studies. 3. It would allow for the institution of necessary treatment in the hospital and assure more adequate instruction and follow-up. 4. This system would afford an opportunity to evaluate various laboratory and x-ray procedures when employed in the absence of symptoms and aid in establishing the value or lack of value of these tests as screening measures in asymptomatic persons. The various examinations are outlined. They were initiated in 1947 and have continued to the present time. This analysis covers the five year period from July, 1947, to July, 1952. During this period of time, 943 examinations were done on 500 persons; 481 were men and 19 were women. The average age of those examined was 48.6 years, with a range of from 32 to 70 years. Two-thirds of the examinees were between the ages of 40 and 55. On the initial examination, 52% of the 500 persons examined were found to have one or more defects requiring treatment. Of all defects found on the first examination and for which treatment was advised, 69.8% were not known to exist prior to the examination. On subsequent examinations of the same persons, from 12.7% to 20.3% were found to have new abnormalities requiring treatment. The percentage of unknown defects suggested on the basis of the history and physical examinations was 87.7%. The routine and ancillary studies were responsible for the establishment of otherwise unsuspected diagnoses in 12.3% of the 351 defects found requiring treatment. These figures illustrate the fact that adequate histories and physical examinations continue to be the basic elements for success in this type of examination. The percentage of positive x-rays and/or laboratory studies that reveal significant disease in the absence of signs or symptoms is small.

Uranium Mining Operations on the Colorado Plateau. J. D. Torrey and P. W. Jacoe. A. M. A. Arch. Indust. Health **12**:375-377 (Oct.) 1955 [Chicago].

In the mining of uranium on the Colorado Plateau, the occupational hazards are those that could be anticipated, except that the problems are multiplied because of the geographical location, the lack of water, the lack of electrical power, and many other shortages. The evidence obtained in five years of study indicates that in order of their seriousness the occupational hazards are as follows: internal alpha radiation, dust, effects of uranium and vanadium as metals, and miscellaneous hazards. The primary hazard involved in mining uranium arises from the alpha emitters of radon, RaA, and RaC'. The most economical way to control the hazard is by well-planned ventilation. This calls for an engineering study. Inclines, shafts, and stope mines will require different ventilation systems.

THERAPEUTICS

Antagonism Phenomena Between Various Micro-Organisms: Yeasts and Bacteria. M. Bizot. Presse méd. **63**:1251-1252 (Sept. 24) 1955 (In French) [Paris, France].

The simultaneous culture of two micro-organisms in the same medium is usually unfavorable to one of them. In vitro experiments on the antagonisms of yeasts and bacteria showed that the ascosporic yeasts of the Saccharomyces type always inhibit the growth of anascosporic yeasts of the Candida type and of certain bacteria, without significant decrease in vitality. The anascosporic yeasts can inhibit the growth of certain microbes, notably micrococci, but in doing so they undergo some decrease in vitality. This effect, proved in vitro, justifies the time-honored practice of administering brewer's yeast. The phenomenon seems to be linked to the life of the cell, which fact contraindicates the therapeutic use of dead yeasts (powdered or granulated). Ultra-high yeast would appear to be the best therapeutic agent, because its optimum temperature is close to that of the human body and thus permits constant effectiveness in the digestive tract. The anascosporic yeasts are completely inhibited by some germs, such as Proteus, and this inhibition can go to almost total lysis of the yeast. In contrast, Saccharomyces boulardii inhibits the growth of Proteus organisms without decrease in proliferation; the alcoholic action of S. boulardii is not sufficient to explain this inhibition. The coexistence of pathogenic organisms with a therapeutic yeast does not affect its normal development. Theoretically, therefore, its administration is feasible to patients with sepsis.

Erythromycin in Human Brucellosis. O. Urteaga B., P. Larrea R. and J. Calderon M. Antibiotic Med. **1**:513-522 (Sept.) 1955 [New York].

The authors made studies on 14 patients with brucellosis, of whom 7 were in the acute and 7 in the chronic phase of the disease. Erythromycin was administered orally in tablet form, the daily dose of from 1.2 to 2.4 gm. being given in three divided doses. The total dose required to eliminate the febrile attack varied in the acute cases between 20 and 30 gm., administered over a period of from 9 to 16 days, while in the chronic cases, treated according to the biological cycle of the organism, similar results were obtained with small doses of 4.8 to 7.2 gm. administered in two or three days. The authors cite literature reports, which demonstrate that there are two stages of brucellosis that correspond to the life cycle of the Brucella organism—the extracellular bacterial stage and the intracellular rickettsial stage—which have different histobacteriological characteristics and cause the toxifebrile and the apyretic syndromes respectively. The antibiotic acts directly on the organism by making the circulating medium hostile. This suppresses the interstitial reproduction of Brucella and compels the bacteria to take refuge in the cell protoplasm, where antibiotic action is almost nil. In this way the antibiotic destroys the extracellular phase of the organism and the corresponding toxi-infectious syndrome. Then the Brucella enter their defensive intracellular phase and the patient experiences a remission, that is, the apyretic stage. The characteristic of the organism of being able to multiply in the interstitial mediums, as well as in the interior of the cell, explains the undulant nature of the disease. The antibiotic, which destroys the septicemic bacterial extracellular phase, interferes with the immunity mechanism, and so relapse occurs after variable periods. The authors were able to demonstrate in some of their patients that, by giving erythromycin in smaller doses and only for a few days, the bacterial phase of the disease was controlled and a clinical remission resulted, yet the immunobiological mechanisms were not interfered with. Short relapses again yield to small doses of erythromycin, and the patient's own defense processes are stimulated. Each passage of the organisms from the tissues to the circulating medium acts like an autovaccination that can be controlled by the therapeutic activity of the antibiotic, that is, the antibiotic acts as an adjunct to the patient's autovaccination processes.

Desensitization in Streptomycin Allergy of Nursing Personnel. H. Jahrmärker. Ärztl. Wchnschr. **10**:873-876 (Sept. 23) 1955 (In German) [Berlin, Germany].

The author presents the histories of two nurses in whom severe sensitivity to streptomycin developed and in both of whom specific desensitization was carried out. The first nurse had prepared from 30 to 40 streptomycin injections daily and had given inhalation treatments with streptomycin. At the end of five months a conjunctivitis developed, also acute urticaria on face, neck, and arms. A skin test with streptomycin produced a positive reaction, whereas tests with other possible allergens proved negative. Although the symptoms of streptomycin sensitivity subsided after treatment with calcium and histamine preparations, recurrences increased in frequency despite the fact that this nurse no longer prepared the streptomycin injections. Specific desensitization was carried out with the aid of subcutaneous injections of streptomycin. These injections were given two or three times a week, beginning with subthreshold doses that were gradually increased. In the first nurse, a good and persisting tolerance for occupational exposure was obtained. In the second nurse, difficulties were encountered during desensitization. Despite slow increase in the desensitizing doses, the treatment had to be interrupted several times. Furthermore, it proved impossible to confer tolerance for therapeutic doses, which would have been important for an intercurrent tuberculosis. Generally the application of small desensitizing doses is sufficient and safe. Clinical success seems to depend not so much on the size of the doses used for desensitization as on the degree of sensitivity that existed before treatment. The degree of tolerance that can be achieved by desensitization is limited as to dose and differs individually. The immunologic foundations and the technique of desensitization are discussed. If sensitivity to streptomycin becomes severe in nursing personnel in whom symptomatic treatment is not sufficient, either desensitization must be attempted or further contact with streptomycin must be carefully guarded against.

Effect of Cortisone and Certain Other Steroids on the Peripheral Vasculature in Arthritis. A. Woodmansey and J. W. Beattie. Ann. Rheumat. Dis. **14**:293-297 (Sept.) 1955 [London, England].

A defective peripheral circulation is frequently observed in rheumatoid arthritis, and many of the therapeutic measures employed in this and allied conditions result in an increased peripheral blood flow. The authors report investigations on cortisone and certain other steroids. Altogether 57 patients (56 women and 1 man) were studied; 43 had rheumatoid arthritis and 14 osteoarthritis. They were investigated in five groups, each group receiving one of the following steroids: cortisone, testosterone, deoxycorticosterone acetate with ascorbic acid, progesterone, and estradiol monobenzoate. Only one patient, wtih rheumatoid arthritis, received two steroids. Cortisone was the only steroid that consistently produced an improvement in the peripheral vascular status and in the arthritic condition. The peripheral vascular effect may be an important factor in the pharmacological action. It is suggested that this effect of cortisone takes place via the thermo regulatory mechanism.

Trial of Chemotherapy of Myeloid Leukemia by Three New Agents: Demecolcine, Thiocolchicine, and Myleran. J. Bousser and D. Christol. Presse méd. **63**:1229-1231 (Sept. 21) 1955 (In French) [Paris, France].

Six patients with chronic myeloid leukemia were treated with demecolcine (Compound 12,669), a colchicine derivative. This drug has a definite effect on leukocytosis, percentage of immature elements in the blood, and splenomegaly; it can produce excellent remissions, but only at dosage levels at which its effects are not strictly controllable and constant checking is necessary. Accidents occur that are serious and unforeseeable. The results obtained with demecolcine are highly transitory. Another colchicine derivative, N-desacetyl-thio-colchicine (R´261 Roussel) was tried in seven patients with the chronic form of the disease and proved to be similar to demecolcine, in that its activity was so temporary as to require a maintenance program of treatment and its toxicity was pronounced. It may even have contributed to the death of one patient. Myleran, or GT 41 (1-4-dimethylsulphonyl-oxybutane), on the other hand, gave encouraging results in a group of 18 patients, 14 with chronic myeloid leukemia, 2 with terminal myeloblastic attack, and 2 with myeloid splenomegaly with myelosclerosis. This was especially true for the first category and not for the second and third. Myleran is well tolerated if no more than 10 mg. is given per day. The authors usually gave three, sometimes four, 2 mg. tablets a day but reduced this number to two when leukocytosis was moderate (about 50,000 white blood cells per cubic millimeter). The effect of the drug on leukocytosis was progressive and complete, and there were no disturbances of red blood cells or platelets. The quality of the remissions obtained was good, and they seemed to last only a little less time than those induced by radiotherapy. Myleran has the advantage of being inexpensive and easy to administer. This drug is worthy of being used in the current therapy of myeloid leukemia.

Desoxycorticosterone and Salicylates in Treatment of Rheumatic Diseases. L. Schiavetti and F. Ferraris. Riforma med. **69**:901-904 (Aug. 13) 1955 (In Italian) [Naples, Italy].

The antirheumatic effect of a preparation containing desoxycorticosterone acetate (0.0002 gm.), sodium salicylate (0.4 gm), vitamin A (0.005 gm.), and vitamin C (0.2 gm.) was studied in 16 patients with third or fourth stage rheumatoid arthritis, 12 with fibrositis, and 30 with arthrosis. The preparation was given rectally in daily doses of three suppositories for 10 days to the patients of the first group, who had had previous treatments, including cortisone, and to those with fibrositis. The patients with arthrosis were given two suppositories daily for 20 days. The elevated erythrocyte sedimentation rate dropped in all the patients with rheumatoid arthritis, 30% of whom were benefited in their subjective symptoms and 40% in their joint function. The best results were obtained in the patients with fibrositis in whom the subjective and functional symptoms disappeared within one week. As for the third group of patients, the therapy was more effective in those with acute arthrosis than in those with arthrosis of long standing in whom even the subjective symptoms were only slightly influenced. A simultaneous study made on 18 patients with the same clinical pictures, who were given rectally only sodium salicylate and vitamin A in doses equal to, or double, those given the above patients, indicated a less marked antirheumatic activity in general of this combination, an insufficient action on pain and the other rheumatic signs, and a less marked action on the erythrocyte sedimentation rate. The salicylic-steroid combination thus gave results superior to those obtained with salicylates alone. The effect of these two substances administered concurrently is potentiated because of their complementary action on the two phases—that of muscular involvement and that of tissue involvement—of the rheumatic inflammation. Side-effects were practically absent in the patients, which fact was partly due to the presence of the two vitamins in the preparation. The vitamins favor the antirheumatic activity, protect the adrenal glands, and probably favor the peripheral utilization of the hormone present in the preparation.

Hormonal Treatment of Cancer of Breast. R. Grinberg, L. Jaroslavsky and G. Stutman. Rev. Assoc. méd. argent. **69**:163-166 (June 15-30) 1955 (In Spanish) [Buenos Aires, Argentina].

The treatment of cancer of the breast through modification of the endocrine balance started with surgical and roentgen castration, proceeded with the administration of hormones and, later, with adrenalectomy or a hypophysectomy. Cancer of the breast in its relation to hormones can be divided into the following three groups: (1) tumors related to estrogens, (2) those related to androgens, and (3) those that are independent of either hormone. Tumors related to estrogens improve from administration of androgens or as a result of surgical operations aimed at eliminating production of estrogens. Tumors related to androgens improve from administration of estrogens. No definite treatment for tumors of the independent type has been found. The effect of hormonal treatment on metastases is fairly good for skin or bone metastases, moderately good for lung metastases, and poor for metastases in the brain or in the liver. Failure of the administration of androgens, estrogens, progesterone, and cortisone points out the independent nature of the tumor. The authors conclude that: (1) hormones constitute a useful treatment of cancer of the breast (in many cases in the advanced stage of the disease the results are favorable, although transient); and (2) adrenalectomy and hypophysectomy have prolonged the life of many patients with cancer of the breast in the advanced stage. These operations are grave for the poor condition of the patients in that stage of the disease. They should be replaced in the future by adequate medical treatment. The number of patients with cancer of the breast who do not respond to hormonal treatment is very large. Therefore, further investigations concerning treatment of value for the independent type of cancer of the breast are of importance.

PATHOLOGY

Lower Nephron Nephrosis: I. A Pathogenesis for Degeneration of the Kidney Tubules. C. O. Rice, J. H. Strickler and N. Lufkin. Am. J. Surg. **90**:547-557 (Oct.) 1955 [New York].

Complete electrolyte, water, nitrogen, and caloric balance studies were done on 102 patients who had been operated on for severe major illness. Of the 102 patients, 48 died and autopsies were performed. In 21 of these, degeneration of the kidney tubules was observed, while in 27 no degeneration of the kidney tubules was revealed. Of the 21 patients with degeneration of the kidney tubules, the organic cause for death as indicated by the pathological report was insufficient in 8 (group 1) but the electrolyte studies made during life revealed definite electrolyte imbalance. In 13 patients (group 2) organic disease was found on autopsy, which could have contributed to the development of the disturbance in the electrolyte balance that had been revealed by the electrolyte studies made when the patients were still alive. The remaining 27 patients (group 3) in whom electrolyte imbalance was known not to be present, as illustrated by the blood electrolyte studies or as indicated by history, were chosen selectively as controls; tubular degeneration was not found in any of them on autopsy. In analyzing these three groups, it was observed that an electrolyte imbalance and tubular degeneration of the kidneys were constantly associated regardless of other organic disease. Conversely, when tubular degeneration was not found in the kidneys (group 3), no electrolyte imbalance had existed, as indicated by the history or the laboratory findings. In some of the patients in group 3, the kidneys did not show tubular degeneration, although the disease causing death may have been severe; in others, the short duration of the illness would seem to indicate that an electrolyte imbalance would not have had time to develop. The authors suggest that, when tubular degeneration of the kidney is found on autopsy, electrolyte imbalance may have been present before death. The consistency of these corollary findings, and their absence when an electrolyte imbalance has been known definitely not to exist, suggests the relationship even in the face of other organic disorder. Conversely, when an electrolyte imbalance has existed and has contributed to the death of a patient, it is likely that tubular degeneration of the kidneys will be found. These corollary findings of electrolyte imbalance and degenerative changes in the kidney tubules suggest a pathogenesis for lower nephron nephrosis, the cause of which has long eluded specific identification.

Lower Nephron Nephrosis: II. The Function of the Kidney When Tubular Degeneration Exists. C. O. Rice and J. H. Strickler. Am. J. Surg. **90**:558-561 (Oct.) 1955 [New York].

The electrolyte intake and output figures and serial blood electrolyte pictures in the 21 patients with degeneration of the kidney tubules reported on by the authors in the preceding paper are discussed. Only 3 of the 21 patients had terminal anuria. The tubular degeneration in these three patients was no greater than that observed in the other 18 patients who did not have anuria. On the whole, the excretion of water by the kidneys was found to be only slightly diminished in the patients with severe tubular degeneration. There was no constancy in the nature of the electrolyte imbalance in relation to the extensiveness of the tubular degeneration. The findings, however, indicated a significant decrease in the excretion of sodium and chloride and, to a lesser extent, of potassium and nitrogen when tubular degeneration of the kidneys was present. These findings suggest the need for reducing the intake of these elements in proportion to their excretion in the urine, lest their retention result in further chemical imbalance. In many of the patients who died with tubular degeneration of the kidneys, glycosuria was not present despite the high blood sugar level. These findings made the authors aware of the need for observing and treating an elevated blood sugar level, as well as treating the electrolyte imbalance when these conditions exist simultaneously.

The Severity of Aortic Arteriosclerosis in Certain Diseases: A Necropsy Study. D. L. Creed, W. F. Baird and E. R. Fisher. Am. J. M. Sc. **230**:385-391 (Oct.) 1955 [Philadelphia].

Although the actual mechanism involved in the development of human arteriosclerosis has not been clearly elucidated, the possibility that certain diseases may influence its evolution is suggested by the fact that syphilitic aortitis, diabetes mellitus, xanthomatosis, hypothyroidism, and lipoid nephrosis, as well as hypertension, are often accompanied by severe arteriosclerosis. The authors evaluated the severity of aortic arteriosclerosis found in 1,223 autopsies performed on males at Veterans Administration Hospital during the seven year period from 1946 to 1952 inclusive. The severity of aortic arteriosclerosis was tabulated in each instance according to the major disease accounting for the patient's death as disclosed at autopsy. Only those diseases that appeared to be related to a statistically significant increase or decrease of aortic arteriosclerosis are considered in the results. The data obtained reaffirmed the observations of an increased severity of arteriosclerosis in patients with hypertension. Bronchogenic carcinoma was also associated with such an increase. This appears to be directly associated with this type of malignant tumor, rather than the presence or absence of hypertension or old age in these patients. The rapid weight loss of patients with bronchial carcinoma likewise cannot account for the increased severity of arteriosclerosis, since such alteration in the nutritional state was found also in other neoplastic diseases not associated with comparable degrees of arteriosclerosis. Whether the smoking factor is important in the development of arteriosclerosis cannot be affirmed or refuted. The high incidence of adrenal metastases (45% in this series) in bronchogenic carcinoma might suggest the possible effects of adrenal destruction in the development of human arteriosclerosis. However, similar degrees of arteriosclerosis were noted in patients without adrenal metastases. The degree of arteriosclerosis was decreased rather than increased in patients with Laennec's cirrhosis and in those with malignant lymphoma. The authors feel that an explanation for a decreased severity of arteriosclerosis in patients with hepatic cirrhosis might well reside in the clearing action of estrogen upon serum lipoproteins, failure of estrogen inactivation being a characteristic of Laennec's cirrhosis. In addition, the presence of jaundice, which is associated with increased serum phospholipids, an important factor in the stabilization of serum lipid emulsions, may also play a role. The frequent hepatic involvement observed in patients succumbing to malignant lymphomas and leukemia may account for the decreased severity of arteriosclerosis in patients with these diseases. A prolonged poor nutritional state, which many of these patients exhibit, is also frequently associated with a decreased severity of arteriosclerosis.

Adrenocortical Activity and Reactivity as Measured by Eosinophil Counts. A. Hoffer. Canad. M. A. J. **73**:463-465 (Sept. 15) 1955 [Toronto, Canada].

It is impossible to assay adrenocortical activity and reactivity by means of eosinophil counts unless the total diurnal rhythm is represented. No valid comparison is possible between groups of subjects unless the activities are compared at a time when the rate is not changing, that is, either at the sleeping eosinophil peak or the waking eosinophil trough. The reactivity must be measured by the rate of change of eosinophils.

***Rheumatic Activity in Auricular Appendages Removed at Mitral* Valvoplasty.** R. M. Clark and W. Anderson. Am. J. Path. **31**: 809-820 (Sept.-Oct.) 1955 [Ann Arbor, Mich.].

Seventy-eight auricular appendages from patients with progressive cardiac failure presumably of rheumatic origin were available from valvoplasty procedures performed at the Toronto General Hospital. Since the most recent operation in this particular group was carried out at least 18 months ago, sufficient time has elapsed to report on the incidence of recrudescence and on any relationship that might exist between the reappearance of clinical rheumatic fever and the extent and nature of the auricular lesions encountered. Portions of the 78 auricular appendages were examined microscopically. In only 10 of them were lesions completely absent. Histological evidence of rheumatic activity in the form of Aschoff nodules was found in 50% of the patients, sometimes many years after the initial attack and in the absence of signs of clinical activity. These lesions were almost twice as frequent in patients under 31 years of age as in the remainder of the series. The change observed most frequently was basophilic connective tissue degeneration, which was present in 54% of the cases. The other lesions observed included cellular infiltration in endocardium and myocardium in 51%, fibrosis in 40% and intra-auricular thrombi in 42%. Thrombi were most frequently found in association with auricular fibrillation, but no correlation could be found between Aschoff nodules and arrhythmias. The presence of Aschoff lesions and the postoperative course could not be correlated. Two possibilities are suggested by the fact that granulomas were encountered more frequently in the younger age group. First, the rheumatic process, although subclinical, may be continuously active. Alternatively, the presence of lesions could be explained by recrudescences becoming less frequent with advancing age. According to the clinical histories, rheumatic fever was present in some of these patients from 6 to 41 years before operation. Incidental to the study of the heart material was the study of 29 specimens of lung taken for biopsy. They were examined for parenchymal and vascular changes that might indicate chronic pulmonary hypertension. About one half of the 29 specimens of lung were found to show changes indicative of chronic pulmonary hypertension.

ANESTHESIA

Local Anesthesia in the Newborn. R. E. Straith, J. L. Teasley and L. T. Moore. Plast. & Reconstruct. Surg. **16**:125-134 (Aug.) 1955 [Baltimore].

The authors feel that the correction of congenital deformities such as harelips is too often postponed much longer than necessary. At between 1 and 4 weeks of age a newborn infant, with adequate preoperative medication, can be operated upon under local anesthesia for the correction of these deformities without the danger of general anesthesia. Local anesthesia has five advantages. First, it is much safer than general anesthesia in infants. Second, there is more room about the operative site when anesthesia apparatus is eliminated. Third, there is no disturbance of fluid intake and output, which often leads to serious problems in infants. Fourth, adrenalin, which can be used with the local anesthesia, markedly reduces the blood loss, especially in very vascular tumors. Fifth, local anesthesia is much less expensive. At the Straith Clinic in Detroit, babies with cleft lip and other deformities are operated upon at about 7 days of age. The baby will usually be gaining weight and should weigh at least 6 lb. (2,721.55 gm.), take fluids normally, and have a normal hemoglobin level, temperature, pulse, and respiration. One hour before operation, 2 or 3 oz. of the food formula are given by gavage. Immediately after this, a suppository of pentobarbital sodium (Nembutal) is inserted as far as possible, and the buttocks are taped tightly shut to prevent its being expelled. The child is then returned to the crib until it is brought to the operating room 45 minutes later. The baby is placed on the operating table, with its head in a rolled towel "doughnut" with adhesive passing under the doughnut and around the forehead. The baby is "mummified" with adhesive tape under the back to both wrists and across the hips and knees. The chest is not immobilized, so that, in case of vomiting, the head and chest can be turned to prevent aspiration. After the baby is in proper position for operation, the depth of analgesia is determined by pinching the ear lobe. If there is a response to this stimulus, 4 or 5 mg. of meperidine (Demerol) hydrochloride is injected intramuscularly in a 6 lb. baby. If the response is delayed, but definite, 2 or 3 mg. is given. If there is little or no response, no Demerol is given. Periodic stimulation is used to keep informed as to the baby's analgesia level. Oxygen may be given through the nose but is rarely necessary. In babies with cleft lip, 5 cc. of 1% Xylocaine is injected at each infraorbital foramen, in the base of the columella, around each superior buccal fornix and at the corner of the mouth, and usually gives excellent anesthesia. Several hundred infants with congenital deformities have been operated upon with local anesthesia and some form of sedation without an anesthetic death.

On the Present-Day Therapy of Shock for Surgical Patients. J. S. Lundy. Proc. Staff Meet. Mayo Clin. 30:446-450 (Oct. 5) 1955 [Rochester, Minn.].

Lundy calls attention to a new factor that must be recognized when shock occurs during anesthesia. When a patient, adult or child, has been treated for some time with either cortisone or corticotropin, and this treatment has been stopped for some time, shock may appear suddenly. This type of shock can be fatal. It should be prevented by the preoperative preparation of such patients with cortisone, and the agent should be given postoperatively as well. Occasionally, a solution of dextran and hydrocortisone seems to maintain the average patient without resort to measures other than the giving of fluids. An equally soluble fluorohydrocortisone has been made available, in which the potency has been increased tenfold, so that 10 mg. of fluorohydrocortisone diluted in 500 cc. of dextrose has been effective. Very recently a preparation of hydrocortisone has been made available that is water-soluble and need not be diluted in more than 2 cc. of water. This preparation can be given in very small quantities. This is convenient and speeds up recovery. When blood has been lost, it should be replaced. However, it may not be necessary to replace all the lost blood. In cases in which surgical shock has occurred, with considerable loss of blood, excellent results have been obtained from first giving 500 cc. of the proper blood, followed by 500 cc. of a 6% solution of dextran in isotonic solution of sodium chloride containing 100 mg. of hydrocortisone. Administration of this solution is followed by the giving of a second bottle of blood, a procedure followed in turn by administration of another bottle of dextran, with or without the hydrocortisone. The author hopes that it will become possible to treat patients prophylactically against shock. He feels that it will probably not harm a patient to give him cortisone preoperatively and to repeat it on the day of operation and again in the first part of the postoperative period.

BOOK REVIEWS

The Practice of Dynamic Psychiatry. By Jules H. Masserman, M.D., Professor of Neurology and Psychiatry, Northwestern University, Chicago. Cloth. $12. Pp. 790. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, England, 1955.

Dr. Masserman has always been active in research as well as in clinical activities and, like many other psychiatrists, has developed his own formulation of the nature of emotional illness, which he presents with great facility. This book follows a previous volume called "Principles of Dynamic Psychiatry," in which he elaborated a theory of biodynamics, correlating concepts of behavior into a comprehensive system. Now he includes his theory of *Ur-defenses* (a group of commonly held beliefs that protect from fear and anxiety) to explain aspects of conduct. Insights gained from animal experiments are also presented. The volume discusses the psychiatric examination and reaction types, although a large portion is devoted to therapy—a wide range of subjects is listed in the index under therapy. There is a chapter that deals with the type of reports that should be presented to medical and nonmedical personnel. A detailed account of the historical background of psychotherapy and chapters on group therapy and musical therapy are features of the book. Many case histories are scattered through the text. The bibliography is extensive and the index adequate. The format is so modern that the headings have no capital letters. The whole text sparkles with mention of history, philosophy, literature, art, and music. There are extensive references to the work of other psychiatrists. This book presents such a personal bias and departs so far from the conventional that it cannot be considered a textbook but will be read largely to learn the author's particular point of view. In general it appears to sacrifice depth and integration to scope. It is recommended for stimulating supplementary reading.

Textbook of Occupational Therapy with Chief Reference to Psychological Medicine. By Eamon N. M. O'Sullivan, B.A., M.B., D.P.M. Cloth. 21s. Pp. 319, with illustrations. H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C.1, England; (printed in Republic of Ireland by Kerryman Ltd., Tralee), 1955.

This book offers a balanced discussion of the practical aspects of occupational therapy. The opening chapter on definitions and history is lively and instructive. Successive chapters deal with general principles, with problems of organization and administration, with the special applications of occupational therapy in mental disease, and with the analysis of representative crafts such as woodworking. The author has gone to much trouble to give concrete details such as floor plans, and the section (beginning with page 67) on occupational opportunities for patients in the kitchen, dining halls, laundry, farm, gardens, grounds, seamstress's department, tradeshops, and engineer's department should be helpful. The many problems in disposing of items made in some occupational therapy are described. There is a good bibliography and an index. This book is recommended.

Systemic Lupus Erythematosus: Review of the Literature and Clinical Analysis of 138 Cases. By A. McGehee Harvey, M.D., and others. Reprinted from *Medicine*, vol. 33, no. 4, December, 1954. Cloth. $3. Pp. 291-437, with 25 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1955.

This monograph from the department of medicine of Johns Hopkins University is the most comprehensive review available of the symptoms, laboratory features, and treatment of systemic lupus erythematosus. Since the concept of this disease has broadened greatly in the last few years with the widespread use of the diagnostic plasma L. E. cell test, such a review is particularly timely. The authors have attempted to gain as complete a picture as possible of the natural history of this disease by analyzing the case histories of 138 patients with systemic lupus erythematosus and by correlating their findings with those in the medical literature. They have analyzed the effects of treatment on each of the manifestations of the disease. The review was compiled with the hope of bringing to light new avenues of approach to the study of lupus erythematosus; however, it should also serve as an excellent reference manual for the investigator and as a differential diagnostic aid for the clinician. Rapid reference is facilitated by the use of a detailed outline in the table of contents. The bibliography is extensive and current. The publishers are fully justified in reprinting this review in the form of a bound volume of good quality.

Wiederbelebung. Von Prof. Dr. H. Killian und Priv.-Doz. Dr. A. Dönhardt. Cloth. 24 marks; $5.70. Pp. 320, with 93 illustrations. Georg Thieme Verlag, Herdweg 63, (14a) Stuttgart, Germany; [Intercontinental Medical Book Corporation (subsidiary of Grune), 381 Fourth Ave., New York 16], 1955.

The authors of this book appear to be well informed about recent developments in pharmacology and anesthesiology and on this basis offer a thorough discussion of the entire subject of resuscitation. Preliminary chapters on definitions and history are followed by a review of the problems of resuscitation as seen from the viewpoint of gas exchange, cardiovascular regulation, temperature regulation, renal function (especially water and salt balance), the muscular and skeletal system, the psyche, and the autonomic nervous system. In connection with this last, there is a penetrating summary of current thinking about the use of drugs to influence or abolish the regulatory activity of the "vegetivum." This is followed by a substantial chapter on the treatment of apnea, of circulatory failure, of renal failure, and of severe pain. A short section on the transportation of the sick and injured includes several important collections of figures. A concluding section takes up the important varieties of asphyxia, of thermal and electrical injuries, and of injuries seen after atomic bombing. The information in this book is up-to-date and compactly presented. The illustrations are not only attractive but also valuable, since they show details of modern European apparatus. Bibliographies include American and Canadian works, and the index is good. The book should help to correct the unreasonable fear of acapnia that lingers from former days. It should be seen by everyone concerned with emergency work, anesthesia, premature infants, oxygen therapy, and first aid.

Applied Medical Bibliography for Students. By William Dosite Postell, Medical Librarian, Louisiana State University School of Medicine, New Orleans. Publication no. 259, American Lecture Series. Monograph in Bannerstone Division of American Lectures in Internal Medicine, edited by Roscoe L. Pullen, A.B., M.D., F.A.C.P., Professor of Medicine, University of Missouri School of Medicine, Columbia. Cloth. $4.50. Pp. 142, with 12 plates. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1955.

Despite the author's declaration that this book was designed for students, it seems to offer a great deal of useful information for several other types of reader. Part 1, dealing with historical bibliography, gives a condensed account of scientific and medical writing from the time of the Assyrian manuscripts through the beginnings of modern medical journalism in the mid-19th century. Part 2, dealing with modern bibliography, is a survey of medical libraries and their collections and a brief evaluation of a number of basic reference books, indexes to periodical literature, and journal collections, including general and specialty groups. In part 3, which describes methods of bibliography, the author outlines scientific investigation and gives in some detail the process of writing a paper and the techniques of compiling a final bibliography, including the two most commonly used forms of documentation. This little volume has considerable value as a reference tool for the individual researcher and for the small library. The appendix includes a bibliography of the various titles mentioned in the book, as well as a list of recommended readings. It is carefully indexed and is illustrated with reproductions of bibliographic tools such as various types of catalog cards, journal-holding files, and index pages. The author's style is smooth and uncomplicated. The book is highly recommended for libraries or for individual readers, as well as for medical students.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

QUERIES AND MINOR NOTES

RECURRENT CARDIAC INFARCTIONS

To THE EDITOR:—*A 35-year-old white man had a posterior myocardial infarction in 1952 followed by an uncomplicated recovery. Four months ago he had an anterior infarction, again with a normal recovery. Both episodes were confirmed by electrocardiograms. At present his tracing shows evidence of only an old anterior infarction. There is nothing to suggest a ventricular aneurysm. A lung x-ray is normal; the cardiothoracic ratio is 16/29.5. He is slightly underweight. His blood pressure and the remainder of his physical examination are normal. This man's only complaint is dyspnea when he lies on his left side, and this is promptly relieved when he changes position. What is the most probable explanation for this symptom? What is the average life expectancy in a case of this kind?* *John M. Trapnell Jr., M.D., Philadelphia.*

ANSWER.—Regarding this inquiry, the cardiothoracic ratio of 16/29.5 suggests enlargement of the heart; therefore, dyspnea, even when it is only experienced when the patient lies on the left side, possibly suggests heart failure. However, since it apparently is relieved by change in position, extracardiac factors such as an arthritis of the dorsal spine, a hiatus hernia, floating lower rib or ribs, an abnormality of the splenic colon, a "Magenblasse," duodenal or gastric lesion, or even a gallbladder condition must be excluded. A trial of therapy for heart failure, with administration of digitalis and a sodium-restricted diet, might be essayed to see if the symptom is obviated. The average life expectancy in the case of a man with two acute coronary episodes would be from two to five years. A patient who has had three bona fide coronary occlusions is alive now for six years following the last and is apparently in "perfect health." The electrocardiogram still shows deep Q-waves. Another patient with bronchial asthma suffered three bona fide episodes of acute coronary occlusion and survived the last attack almost 10 years.

TUBERCULOSIS IN INFANT

To THE EDITOR.—*What treatment is indicated for an 11-month-old child with a large, firm, nontender cervical node of one month's duration and a positive patch test? Examination otherwise and chest x-ray are negative. The only therapy to date has been antibiotics for one week with no apparent change in the mass. If this should be tuberculous adenitis what therapy would be advised?*

Keith E. Vincent, M.D., Long Beach, Calif.

ANSWER.—Any 11-month-old child who reacts characteristically to tuberculin has tuberculous lesions that probably are multiple and may be in various parts of the body. Although it would be necessary to recover tubercle bacilli from the large, firm cervical lymph node for exact diagnosis of this particular disease, it is reasonably safe to assume that it is tuberculous and treat it accordingly. Antimicrobial drugs (streptomycin, aminosalicylic acid, and isoniazid) are in common use in such cases. Some prefer isoniazid alone, others prefer isoniazid and aminosalicylic acid, and still others administer all three of the major drugs simultaneously. Each of these drugs has a suppressive effect on tubercle bacilli, and when two are given in combination they may be more effective than either one alone. Moreover, such combinations delay emergence of resistance of tubercle bacilli to drugs. It would hardly be expected that one week of antimicrobial drug administration would result in an appreciable change in the large lymph node. The treatment probably should be continued for at least six months or even a year. If the node shows evidence of breaking down and becoming fluctuant, surgical extirpation would be indicated without interruption of drug administration. The child has other lesions; therefore, the removal of the one now presenting is not a cure for the disease. One or more of the other lesions may evolve to clinical proportions, which may be prevented by antimicrobial drugs. There is now a widespread movement for the administration of antimicrobial drugs to those who have recently converted from nonreactors to reactors to tuberculin without any other finding but the tuberculin reaction. Recent convertors are known to have at least microscopic tuberculous lesions. They are vascular, and the drugs may be expected to reach all tubercle bacilli. It is not yet known whether the bacilli are destroyed or only suppressed. In any event, cases have now been reported in which reversion of the tuberculin reaction has occurred following prolonged drug administration. It is still possible that only suppression has occurred to such a degree that bacilli have not multiplied and therefore tuberculoprotein is not being eliminated in sufficient amount to maintain sensitivity of tissues. However, some evidence has accrued that strongly suggests such treatment of recent tuberculin converters prevents development of acute tuberculous lesions such as meningitis, generalized miliary disease, and pleurisy with effusion.

GREASE GUN INJURIES

To THE EDITOR:—*Recently I had two cases of finger injury caused by penetration of hydraulic oil under high pressure. In one case there was a small laceration of the skin; in the other there was no visible laceration. The latter case proceeded through stages of inflammation, atrophy, and contracture; the finger finally had to be amputated. The other case occurred three weeks ago; the finger is still swollen and inflamed. I presume the inflammation is chemical. Penicillin was not expected to help and did not. Please comment on nature of these oil injuries and their proper management. Have you heard of such cases involving the eye or the male genital organ?* *J. B. Martin, M.D., Fredericktown, Pa.*

ANSWER.—Grease gun injuries to the hand have been reported a number of times in the literature. (Byrne, J. J.: Grease Gun Injuries, *J. A. M. A.* **125:**405 [June 10] 1944; Frank, E.: Hand and Finger Injuries Caused by Grease Under High Pressure, *Wien. klin. Wchnschr.* **67:**23, 1955; Mason, M. L., and Queen, F. B.: Grease Gun Injuries to Hand, *Quart. Bull. Northwestern Univ. M. School* **15:**122, 1941.) The writer has seen a similar injury of the nose but has seen no report of involvement of the eye or male genitalia. The injury is due to injection under high pressure, (from several hundred pounds up to 1,000 lb.) of lubricating grease from the nozzle of a grease gun. Similar injection of diesel oil may also occur accidentally in mechanics repairing motors. The injection may be quite painless, the finger or hand simply swelling suddenly and becoming numb. The part becomes white or yellowish-brown, and a small pin-point greasy wound is seen. There is often little or no immediate tenderness. Pretty soon, however, areas of gangrene of skin or entire digit occur, and associated with this are evidences of infection. Three factors are accountable for symptoms in this early stage: pressure of the grease, mechanical and chemical irritation of the foreign body, and infection. It would seem logical at this stage to open the digit both to relieve tension and to release as much as possible of the grease. After the initial stage of injury has passed, the grease sets up a chronic inflammatory reaction about the whole extent of the distribution of the grease. This may be extensive, especially if the initial pressure was high or if tendon sheaths and loose fascial spaces are invaded. In this stage it is advisable to dissect out the involved areas, which may require skin excision and replacement. Where residues of oil remain in the tissues, it seems logical to assume that in a certain num-

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

ber of cases chronic granulomatous lesions (oleomas) will occur; small ones have been encountered by this consultant. These chronic lesions belong to the same generic class as the paraffinomas, the oleomas that followed oil injection of hernias, hemorrhoids, breast plastics, and facial plastics of the past. Similar lesions were reported in the recruits of the German and Russian armies who injected oil beneath the skin to produce tumors for purpose of escaping service.

SYPHILIS AND PAIN IN KNEES

To the Editor:—*A man, aged 52, was found to have syphilis in 1946 and was treated with 10 million units of penicillin. He developed a sensitivity to penicillin and has been unable to receive any since. In 1952, he had pain on the medial aspects of the knees just above and below the joint line and had tenderness over this area. X-rays showed osteoarthritic changes, and an adventitious bursa was removed without relief. The pathologist reported round cell infiltration of the tissue. In 1954, x-rays showed a defect of the tibial plateau and bone adjacent on both tibias. The uric acid level was 5 mg. per 100 cc. A spinal tap was done, and a 4+ Kahn was reported. X-rays taken in May, 1955, showed a healing reaction of the involved areas of the tibia, so that the joint margins were reformed. He has continued to have pain. Colchicine preparations were tried without relief. Should this patient receive further treatment for syphilis, and, if so, should heavy metals be used? At present, neurological examination is negative. Would x-ray findings, such as a defect in the medial tibial plateau that later filled in within a year's time, be caused by syphilis?* *M.D., North Dakota.*

Answer.—The question posed as to the relationship of syphilis to the symmetric difficulty with this patient's knees could hardly be answered without the opportunity to see the patient and his serial x-rays. The description given of the lesions in the knees is compatible with the possible diagnosis of bilateral Charcot neuropathy, and the fact that the patient has had pain does not rule this out. Contrary to the usual textbook statement, Charcot joints are sometimes quite painful. On the other hand, the bilaterality of the lesions and the tendency to spontaneous healing of involved areas of the tibial plateau does not conform to the Charcot joint and renders this diagnosis relatively improbable. The positive Kahn test in the spinal fluid cannot be interpreted. It probably indicates that the patient has neurosyphilis. Flocculation tests on the spinal fluid are, however, relatively unsatisfactory, and, in addition, the information concerning the patient's spinal fluid examination is totally incomplete. One would wish to know the blood cell count, the quantitative protein content, a quantitatively titered complement fixation (not flocculation) test, and a colloidal test. While it seems relatively unlikely that the lesions in the patient's knees are due to syphilis, nevertheless, under the circumstances a therapeutic test is perhaps thoroughly justifiable. Since the patient is known to be penicillin sensitive, such a therapeutic test is probably best carried out with intravenously administered mapharsen, 60 mg., every second or third day to a total of 10 doses, plus 2 to 4 gm. of potassium iodide three times daily (e. g., 1 teaspoonful of the saturated solution given well diluted three times daily after meals). If there is not prompt relief from the pain within a couple of weeks on this treatment regimen, it may be assumed that the lesion is not syphilis. Arsenic plus potassium iodide is better for the purpose indicated than any of the broad-spectrum antibiotics. These have some treponemicidal effect, but this is substantially less than with penicillin or arsenic.

PROTEIN-BOUND SERUM IODINE

To the Editor:—*Kindly indicate corresponding values of basal metabolism tests and protein-bound iodine levels. In other words, a basal metabolism of +20, 30, 40, 50, or 60 corresponds to what iodine level in the blood?*

John P. Gifford, M.D., Vero Beach, Fla.

Answer.—The accepted normal levels of protein-bound serum iodine vary according to the technique employed in their determination but are generally in the range of 3.5 to 8 mcg. per 100 ml. of blood. Fluctuations in readings occur when an attempt is made to exactly reproduce tests of basal metabolic rate; similarly, minimal variations are noted in protein-bound iodine values. Thus, it is not possible to positively interchange these determinations in terms of each other. A severely myxedematous individual might have a protein-bound iodine level of 0.2 to 0.4 mcg.; in the moderate hypothroid state 1 to 2.5 mcg. would be expected, and a moderately severe thyrotoxic patient should present a reading of 10 to 12 mcg. with a corresponding basal metabolic rate of +40 to +60. It should be emphasized that a critical clinical evaluation is the most valuable diagnostic procedure in the determination of the status of any patient suspected of thyroid dysfunction.

CORTISONE SUPPRESSES RESISTANCE TO INFECTION

To the Editor:—*In treating acute rheumatic fever with cortisone acetate in doses of 100 mg. daily the following effects occurred in a 13-year-old boy who has been in bed for one year. On the 21st day an anal ulcer appeared. On the 28th day a tonsillar ulcer appeared. On the 30th day a temperature of 101.4 F (38.5 C) appeared with extensive swelling of the cervical areas bilaterally. This swelling simulated parotitis, which the patient had several years ago. These cervical swellings were indurated and erythematous, and the one on the left side ruptured with a discharge of pus. Before the skin broke there was an eschar 1 in. by 2 in. in area. After this the temperature dropped to 97.4 F (36.3 C). The right cervical swelling fluctuates but is not erythematous or indurated and has no eschar formation. The cortisone acetate therapy was discontinued on the 33rd day. The anal ulcer is healing, and the tonsillar ulcer is gone. It is now 18 days since the patient has had cortisone. The arthritis has gone, and the tachycardia remains at 122 per minute.* *A. G. Walters, M.D., Detroit.*

Answer.—It has been shown that cortisone may suppress resistance to infection. This depression of resistance has been observed in bacterial, viral, and parasitic infections in animals. Acneform eruptions and furunculosis have been reported during hormonal therapy. The use of cortisone in this patient is therefore contraindicated. The history of previous swelling of the cervical glands and the present recurrence of the swelling, with necrosis, ulceration, and purulent discharge is suspicious of tuberculous cervical lymphadenitis. It has been reported that inactive tuberculous foci may be reactivated during hormonal therapy and even after the cessation of treatment. The possibility of the coexistence of tuberculosis with the rheumatic fever should be ruled out.

SUSPECTED CRIMINAL POISONING

To the Editor:—*Blood and urine studies of a patient show the presence of arsenic. There is strong suspicion, albeit no proof, that a criminal attempt at slow poisoning was made. The patient decided not to bring the case into court. Has the physician the duty, or even the right, to make a report contrary to the wish of the patient?* *M.D., New York.*

Answer.—The inquirer does not state the basis for his suspicion of criminal poisoning, but it may be assumed that he has made an adequate investigation to rule out the possibility of accidental poisoning or poisoning in some way related to the occupation of the patient. In some jurisdictions there may be a legal obligation specifically imposed by statute or ordinance on the physician to report to the police a situation involving possible deliberate poisoning. The presence of a small amount of arsenic may be attributed to foods eaten by the patient, but where the quantity exceeds such amounts the possibility of deliberate poisoning may not be ignored. There is undoubtedly a duty placed on the practitioner to protect and save the life of his patient. In the well-known Scottish poisoning case of *Rex v. Pritchard*, Edinburgh, July, 1865, the victim's physician was severely criticized by the judge for his conduct, in that he took no action when he had become convinced that his patient was being poisoned. The judge said that no consideration of professional etiquette could stand in the way of the far higher duty "owed by every right-minded man to his neighbor" to prevent the destruction of human life, in which duty the practitioner had failed. As a general practice, when criminal poisoning is suspected, the patient should be moved to a hospital where the necessary treatment and investigation can be undertaken. This will protect the patient from the possibility of further poisoning, allow for a more conclusive diagnosis, and afford an opportunity for necessary investigation. Chapter 8, section 1, of the Principles of Medical Ethics points out that physicians as good citizens "should bear their part in enforcing the laws of the community and in sustaining the institutions that advance the interest of humanity." Chapter 1, section 1, similarly states in part that: "The prime object of the medical profession is to render service to humanity. . . ." The fact that a person who is guilty of an attempt at criminal poisoning may in effect be shielded by the physician who fails to call in the authorities to investigate represents a menace not only to the patient involved but to the community at large. The same principle is involved as in the case of a patient having a contagious disease who must be reported for the benefit of the community.

COLOSTOMIES

To the Editor:—*Does the use of an artificial anus on the left side shorten the life span of the patient? In such cases what is the best system to elicit intestinal movements for evacuation? Does the daily use of enemas to clean the large intestine cause atrophy of the peristalsis of the cecum and of the ascending colon? When enemas are used what quantity of water and size of the sound should be used? Is it advisable to use salted water for enemas?* *M.D., Argentina.*

Answer.—A left-sided colostomy in no way shortens the life of a patient, since there is sufficient colon left for normal function. The absorptive aspect of the right colon is not interfered with and enough of the left side of the intestine remains to absorb most of the water and allow for a fairly firm stool. On the question of daily evacuations, a daily enema acts in a cleansing fashion so that usually there are no movements between enemas. Daily enemas do not produce an atrophy of the colon or interfere with any general peristaltic movements. For some patients, an enema every second or third day will control the bowel movements. The amount of the enema varies from about a pint to a quart, depending on what works best for the patient, who rapidly learns how to obtain a good evacuation. Usually a 20 or 22 F. catheter is considered effective to introduce the enema into the colostomy opening, and the distance inserted varies from 10 to 25 cm. Enema water can be plain lukewarm water or slightly soapy water. Some patients with left-sided colostomies get along quite well without enemas. In time the intestine develops a fairly rhythmic function, and bowel movement usually occurs first thing in the morning. There may be two or three small movements during the day, which are readily handled with the modern colostomy apparatus.

PULMONARY FIBROSIS WITH EMPHYSEMA

To the Editor:—*Please describe the management of a case of bilateral pulmonary fibrosis with emphysema, cause undetermined, in a 49-year-old physician in general practice. There is some dyspnea with occasional wheezing, noticeable only on rapid climbing of hills or stairs. Kindly make special reference to: (1) prevention and treatment of respiratory infection, (2) amount and type of exercise, (3) special breathing exercises, and (4) use of bronchodilators and alternatives as iodides and arsenic.* *M.D., North Carolina.*

Answer.—The dyspnea in this patient is probably caused by diffuse airway obstruction, and management should be directed primarily toward keeping the airways open. The extent to which this can be accomplished depends on the mechanism of obstruction that may vary within the broad group of patients who are considered on clinical grounds to be suffering from emphysema. 1. By reducing inflammatory swelling of the bronchial mucosa, antibiotics help to restore patency of the airways when respiratory infection is present. A mixture of organisms is usually involved. Prophylactic use of antibiotics is not indicated unless repeated respiratory infections dominate the clinical picture. 2. Physical exercise up to the point of dyspnea is not contraindicated. 3. Special breathing exercises may be helpful if skilled instruction can be obtained. Such exercises often increase the patient's exercise tolerance and increase his ability to control bouts of dyspnea. 4. Bronchodilators provide the most direct and often the most successful means of relieving airway obstruction with its resultant dyspnea. Iodides and arsenic are not effective alternatives for bronchodilator therapy. Isopropylarterenol and similar agents are conveniently administered with a hand-operated nebulizer. It is important that the patient exhale maximally and then inhale the aerosol deeply so that it can reach the smaller airways. Bronchodilator therapy should be administered freely and, if effective, continued indefinitely.

AUTOPSIES

To the Editor:—*A patient with the probable diagnosis of lupus acutus disseminatus, aplastic anemia, and thrombocytopenia died in a hospital here. The family did not want an autopsy. No charity was involved. Could the coroner and hospital insist on an autopsy or had the wish of the family to be respected?* *M.D., California.*

Answer.—A hospital may request an autopsy but may not have one performed without the consent of the surviving heirs or next of kin. A coroner may insist upon an autopsy in any case coming within his custody within the limits of the statute in the particular state in question. In California, for example, various statutory provisions set forth circumstances under which autopsies may be ordered by the coroner, deputy coroner, justice of the peace, workman's compensation commission, superintendent of public health, and private individuals.

METHOD FOR GIVING THE SALK POLIOMYELITIS VACCINE

To the Editor:—*In* The Journal, *Aug. 13, 1955, page 1406, is a question and answer entitled "Method of Giving the Salk Poliomyelitis Vaccine." I feel that the answer to the question of whether the vaccine should be given by the single-syringe-multiple-needle change method is misleading to the general practitioner. It has been established that the virus of epidemic hepatitis can be transmitted by minimal amounts of blood or tissue juice that will always be present in a syringe if the plunger is drawn back. To recommend not to draw the plunger back is a rather dangerous recommendation in general and certainly not recommendable for the Salk vaccine. Little is known about the immunization, but it is well established that vaccination and immunization given intracutaneously or subcutaneously are far more effective than the intravenous route. Granted that the chances of hitting a blood vessel are minimal, I believe that in a new procedure, such as the Salk vaccination, everybody should strictly adhere to the recommended procedure.*

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GUNSHOT WOUND OF AORTA

To the Editor:—*I would like to comment on "Gunshot Wound of Aorta," Queries and Minor Notes section,* The Journal, *Dec. 11, 1954. One of the points the inquirer wanted to know was whether a .22 caliber bullet striking the abdomen and penetrating the abdominal aorta would stop a man at once. No mention was made by the consultant concerning the hydraulic effect of missiles on the large blood vessels of the body. A missile striking the abdominal aorta can kill instantly by rupturing the aortic valves, bursting blood vessels in the brain, and/or dilating the heart, producing cardiac standstill. It is my opinion that a .22 caliber bullet lacks the momentum to do this unless it is one of the high velocity special makes that several companies put on the market.*

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TREATMENT OF SYSTEMIC LUPUS ERYTHEMATOSUS WITH PREDNISONE AND PREDNISOLONE

Alfred Jay Bollet, M.D., Stanton Segal, M.D.
and
Joseph J. Bunim, M.D., Bethesda, Md.

Prednisone and prednisolone have been found to be approximately four times as potent as cortisone and hydrocortisone in suppressing the inflammatory manifestations of rheumatoid arthritis.[1] Since administration of these two synthetic steroids in moderate doses does not cause sodium retention or edema, they offer important advantages over previously used steroids. Cortisone and hydrocortisone have been employed in the treatment of systemic lupus erythematosus with considerable effectiveness in controlling many of the manifestations of this disease. These drugs, however, tend to intensify fluid retention and hypertension in patients with renal and cardiac involvement. It was thought advisable, therefore, to compare the relative merits of prednisone and prednisolone with the older steroids in the treatment of systemic lupus erythematosus and to determine the effectiveness and limitations of the newer steroids.

MATERIAL AND METHODS

This series consists of 10 patients with systemic lupus erythematosus whose disease had not been satisfactorily controlled at the time of admission (table 1). Their ages varied between 7 and 46 years, and the disease had been present for between 1 and 10 years. Nine patients were female; there was one Negro patient in the group. At the time of admission, four patients were receiving cortisone in daily doses of 37.5 to 100 mg., four were getting hydrocortisone, 60 mg. per day, and to one patient 112.5 mg. of cortisone and 40 units of corticotropin daily were being administered. One patient had not received any hormone therapy. With these various regimens, control of the disease was incomplete. The patients were having continual symptoms or periodic exacerbations of activity of the disease. Further, most of the patients exhibited some undesirable side-effects of hormone therapy (table 1). In two instances these side-effects were of a serious nature; one patient had an episode of psychosis while receiving 200 mg. of cortisone daily and another patient had frequent convulsive seizures, which stopped when cortisone therapy was discontinued.

All 10 patients demonstrated the L. E. phenomenon in peripheral blood and had some systemic manifestations of acute illness. Nine patients had joint symptoms, eight had anemia, and eight leukopenia. Four patients had severe renal disease, and, of these, two had a nephrotic syndrome. Three patients were observed to have convulsive seizures. Typical cutaneous lesions occurred in three.

In the initial period of observation, patients continued to receive the medicaments administered prior to admission. When warranted, the dose of steriod that had been given prior to and immediately after admission was gradually lowered in order to define more clearly the nature of the suppressed symptoms. In most instances, patients were allowed to have some escape from hormonal control. An abrupt change was then made from previous medication to prednisone or prednisolone without interrupting steroid therapy. Placebos were employed in such a manner that the patient was not aware when the switch was being made from the old to the new steroid. As the dose of the old steroid was decreased, placebo was substituted for the amount withdrawn and at the same time another placebo indistinguishable from prednisone or prednisolone was given. At a certain time, the antecedent drug was completely replaced by its placebo, and simultaneously the new steroid was substituted for its placebo. It should therefore be recognized that many of the symptoms that responded to prednisone had been also satisfactorily suppressed by cortisone or hydrocortisone.

The size of the initial, suppressive dose of prednisone or prednisolone varied roughly with the severity of the

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From the National Institute of Arthritis and Metabolic Diseases, National Institutes of Health. Dr. Bollet is now at Wayne University College of Medicine, Detroit.

The prednisone and prednisolone used in this study were supplied by Schering Corporation, Bloomfield, N. J.

[1] (*a*) Bunim, J. J.; Pechet, M. M., and Bollet, A. J.: Studies on Metacortandralone and Metacortandracin in Rheumatoid Arthritis, J. A. M. A. **157:** 311 (Jan. 22) 1955. (*b*) Bunim, J. J.; Black, R. L.; Bollet, A. J., and Pechet, M. M.: Metabolic Effects of Metacortandralone and Metacortandracin, Ann. New York Acad. Sc. **61:** 358 (May 27) 1955. (*c*) Bollet, A. J.; Black, R., and Bunim, J. J.: Major Undesirable Side-Effects Resulting from Prednisolone and Prednisone, J. A. M. A. **158:** 459 (June 11) 1955.

disease. After a period of observation long enough to determine the effectiveness of the suppressive doses on each manifestation of the disease, the dosage was tapered 5 mg. every five days, until recurrence of some symptoms developed. The next higher dose was then selected as the minimum maintenance dose for complete suppression of the disease. The patients were then observed while receiving this dosage for periods varying from two to eight months; the average length of follow-up was four months. Throughout the period of study, from the time of admission, all patients in the series were given a diet containing 3 gm. of sodium (5 gm. of sodium chloride) per day.

RESULTS

Dosage.—The initial suppressive daily dose varied between 20 and 60 mg. (fig. 1) and averaged 35 mg. In most instances, 30 or 40 mg. was given daily. The largest dose, 60 mg. per day, was given in case 6. This patient had been receiving 160 units of corticotropin gel per day at the referring hospital in another state. She was given only 60 mg. of hydrocortisone on the day of transfer, while en route to Bethesda. During this transition there developed rapidly spreading bilateral pneumonia and increased intensity of the facial rash, mucous membrane lesions, and arthritis. Circulatory shock supervened. Prednisone therapy was instituted immediately upon admission; 60 mg. was given the first day. Vigorous antibiotic measures were added, although the causative agent of the pneumonia was not demonstrable. Within 24 hours the patient was markedly improved, and the dose of prednisone was decreased to 40 mg. per day. This case illustrated the capacity of prednisone, supplemented with antibiotics, to control a very severe exacerbation of lupus erythematosus complicated by a serious intercurrent infection. Maintenance doses in the group of patients varied between 5 and 30 mg. per day, averaging 18 mg. Comparison of the maintenance dose of prednisone with the previous maintenance dose of steroid reveals that prednisone has about four times the potency of cortisone and a little over three times that of hydrocortisone in controlling the manifestations of systemic lupus erythematosus.

TABLE 1.—*Composition of Series of Ten Patients with Lupus Erythematosus at Beginning of Prednisone Treatment*

Case	Age	Sex	Race	Duration of Disease, Yr.	Previous Hormonal Therapy	Daily Maintenance Dose	Comment
1	41	F	W	4	Cortisone *	100 mg.	Incomplete control, edema, moonface, mental clouding, convulsions
2	29	M	W	8	Cortisone + corticotropin *	112.5 mg. + 40 units	Incomplete control, pustular rash, moonface, seizures
3	24	F	W	2	Cortisone *	50 mg.	Edema, acne
4	46	F	W	2	Cortisone *	75 mg.	Incomplete control with severe relapses, persistent infection, phlebitis
5	7	F	W	6	Cortisone Hydrocortisone *	200 mg. 60 mg.	Moonface, edema Acne
6	21	F	W	3	Corticotropin gel Hydrocortisone *	160 units 60 mg.	Incomplete control, amenorrhea Severe exacerbation
7	23	F	W	10	Hydrocortisone * Corticotropin (intermittent)	60 mg.	Moonface, increased edema
8	35	F	W	5	Cortisone * Corticotropin (intermittent)	37.5 mg.	Incomplete control, amenorrhea Increased edema, psychosis
9	42	F	W	7	Cortisone Hydrocortisone *	100 mg. 60 mg.	Incomplete control Incomplete control, hirsutism
10	33	F	N	1	....	....	....

* Therapy that patient was receiving at time of admission.

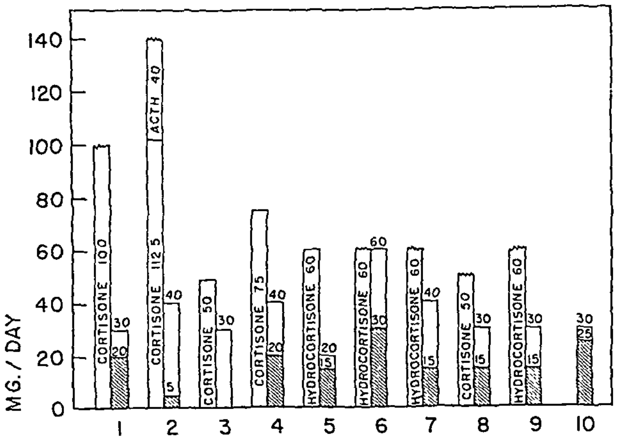

Fig. 1.—Dosage of steroid showing relative potency in 10 patients with systemic lupus erythematosus. For each case, first bar indicates maintenance dose of cortisone, hydrocortisone, or corticotropin at time of admission; a frayed top indicates incomplete control of symptoms. Second bar represents maximal amount of prednisone or prednisolone given. Cross-hatched area within second bar indicates minimum maintenance dose subsequently established. (Minimum dose not established for case 3 at time graph was drawn.)

None of these patients had a complete and sustained remission, and therapy was therefore not interrupted. One patient exhibited a definite change in the degree of activity of his disease (case 2). When initially seen, he was having systemic and pulmonary symptoms in spite of treatment with 112.5 mg. per day of cortisone plus 40 units per day of corticotropin gel. He experienced a severe exacerbation of these symptoms when the corticotropin was reduced to 5 units per day, even though the cortisone dosage was maintained. He was markedly improved when given prednisolone, 40 mg. per day. After four months of therapy with prednisolone and then prednisone, it was found that a dosage of only 5 mg. of prednisone per day was sufficient to prevent symptoms. Subsequently, the dose had to be increased to 10 mg. per day. As there was apparent change in the activity of the disease, this patient was not included in calculation of relative potency of the steroids. Two patients in this series were first given prednisolone for a period of six weeks and subsequently were transferred to prednisone therapy. No difference in potency, effectiveness, or side-effects was noted between the two drugs in these patients. Reference hereafter will be made only to prednisone, although some of the observations on these two patients were made with prednisolone.

Effect on Systemic Manifestations.—Fever was present in six patients and chills in two at the time prednisone therapy was begun; there was a rapid defervescence and disappearance of chills in all patients; normal temperatures were reached in 12 to 24 hours (table 2). Marked malaise was present in 10 patients and anorexia in 8; both cleared completely within a few days in all but 2 patients, who presented severe nephrotic syndrome. Joint pains in nine patients and objective joint findings in seven completely disappeared in all but one patient, who had nephrosis. In one of the two instances of splenomegaly, the spleen receded after two days of therapy, but in another patient, who had a greater degree of splenomegaly (two fingerbreadths below costal margin), there was no change. Generalized adenopathy diminished gradually over the course of a few weeks in two of four patients.

Table 2.—*Effect of Prednisone Therapy on the Manifestations of Systemic Lupus Erythematosus*

Manifestations	Cases, No.	Favorable Response	
		Cases, No.	Time
Systemic			
Fever	6	6	12-24 hr.
Chills	2	2	immediate
Malaise	10	8	1-4 days
Anorexia	8	6	1-2 days
Arthralgia	9	8	1-3 days
Objective joint findings	7	6	1-7 days
Splenomegaly	2	1	2 days
Adenopathy	4	2	2-3 wk.
L. E. phenomenon	10	0	....
Erythrocyte sedimentation rate, above 25 mm./hr.	10	4	2-6 wk.
C-reactive protein	5	5	7 days
Skin and mucous membrane lesions			
Rash	3	3	10 days-2 wk.
Fingertip lesions	1	1	1 day
Mucous membrane	3	3	10 days-2 wk.
Pulmonary and pleural			
Cough	7	6	1-5 days
Pleuritic pain	6	6	1-5 days
Chest tenderness	2	2	7-10 days
Friction rub	3	3	1-3 days
Rales	5	5	1-7 days
X-ray changes	8	6	2-6 wk.
Cardiovascular			
Dyspnea	6	4	1-10 days
Precordial pain	5	5	1-12 days
Enlarged heart	3	0	....
Apical systolic murmur	3	3	1-2 days
Pleuropericardial friction rub	2	2	1-2 days
Electrocardiogram abnormalities	5	2	1-5 wk.
Renal			
Edema	3	1	gradual
Hypertension	3	0	....
Retinopathy	3	1	3 mo.
Proteinuria	5	1	2 wk.
Hematuria	7	2	within 7 days
Cylindruria	4	1	4 days
White blood cells in sediment	7	0	....
Azotemia (blood urea nitrogen above 20 mg./100 cc.)	6	3	....
Hyponatremia (less than 136 mEq./liter)	5	2	....
Hyperkalemia (above 5.5 mEq./liter)	3	2	....
Gastrointestinal			
Nausea and vomiting	3	2	1-4 days
Abdominal pain	4	4	1-3 days
Tenderness	5	5	1-10 days
Hepatomegaly	4	3	2-4 wk.
Central nervous system			
Headache	6	3	1 day
Convulsions	3	2	1 day
Mental changes	2	2	1-2 wk.
Abnormal electroencephalogram	5	0	....
Hematological			
Leukopenia (less than 5,000 cells/cu. mm.)	8	6	1-6 wk.
Anemia (hematocrit less than 38%)	8	2	3 wk.
Serum proteins			
Hypoalbuminemia (less than 3.5 gm./100 cc.)	10	0	....
Hyperglobulinemia (above 3.5 gm./100 cc.)	4	0	....

The L. E. phenomenon was present in peripheral blood and was not influenced by prednisone therapy. The sedimentation rate was elevated above 25 mm. per hour (Westergren) in all 10 patients, with an average level of 85 mm. per hour. On prednisone therapy, a diminution in sedimentation rate occurred in all patients, but only in four did it return to normal levels; the average of the lowest values obtained in each patient on therapy was 48 mm. per hour. C-reactive protein was present in the serum of five patients when prednisone therapy was begun and disappeared in all, within one week.

Fig. 2.—Chest x-ray of patient in case 2 taken while patient was receiving daily doses of 112.5 mg. of cortisone and 5 units of corticotropin.

Effect on Skin and Mucous Membrane Lesions.—A typical facial rash of lupus erythematosus was present in two patients, and a lesion resembling that seen in discoid lupus was present in another (table 2). The erythematous malar rash disappeared within two weeks in both patients, and the chronic discoid rash improved gradually but had not entirely disappeared after three months of therapy. Mucous membrane lesions, consisting of shallow inflamed ulcerations, were present in three patients and cleared within two weeks of therapy.

Effect on Pulmonary and Pleural Manifestations.—Cough and pleuritic pain disappeared within a few days in all patients with these symptoms (table 2). Pleural friction rubs were present in three patients and cleared within three days of treatment. Chest wall tenderness, which was noted in two patients, slowly cleared over 7 to 10 days. Moist rales were present bilaterally in five patients, and definite clearing in most areas was noted in all patients during the first week of therapy; in three patients, however, patches of rales persisted throughout therapy. Radiological findings were noted in eight patients, consisting of parenchymal infiltrates and horizontal linear densities, usually accompanied by small pleural effusions. In six of these patients, complete or almost complete disappearance of these changes occurred during two to six weeks of prednisone therapy (fig. 2 and 3), but in the other two patients new parenchymal infiltrates appeared.

Effect on Cardiovascular Manifestations.—Mild dyspnea at rest was present in six patients and subsided in four (table 2). Aching, precordial pain, which was present in five patients, disappeared in all. Apical systolic murmurs, which were heard in three patients during febrile periods, cleared within two days of treatment. Pleuropericardial friction rubs were heard in two patients over the apex of the heart, and these also disappeared within two days. Enlargement of the heart was present in three patients but was marked in only one. A transient diminution in cardiac size occurred only in the last-mentioned instance during prednisone therapy. Later this patient was found to have a large pericardial effusion at autopsy, as was suspected clinically. The other two patients with enlargement of the heart also had evidence of pericardial disease. Electrocardiographic abnormalities were present in five patients, consisting mainly of T wave and S-T segment changes. The patterns returned to normal during treatment in only two patients.

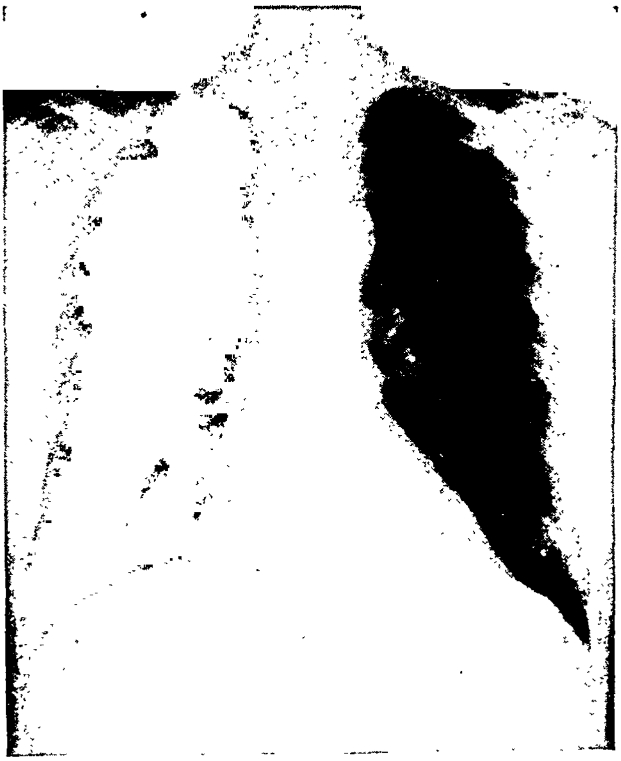

Fig. 3.—Chest x-ray of patient in case 2 taken after 18 days of prednisone therapy, 40 mg. per day.

Effect on Renal Manifestations.—Some evidence of renal abnormality was present in seven patients, but in only four were these findings marked (table 2). Persistent proteinuria (before prednisone therapy) was noted in these four patients; three also had hypoalbuminemia, edema, and azotemia; two had hypertension. Determinations of the daily urine protein excretion in these four patients showed no significant changes during therapy with prednisone in doses up to 30 mg. per day for as long as three months, and there was no indication of improvement in the renal status of any of the patients with severe renal disease.

In one patient proteinuria and cylindruria, and in two hematuria, seen microscopically, appeared during an acute febrile exacerbation of the disease. The proteinuria and hematuria subsided when the toxic state was controlled with prednisone, but no change was noted in the chronic type of hematuria or cylindruria that was unrelated to the febrile episodes. Similarly, azotemia appeared in three patients during acute exacerbations of the disease accompanied by vomiting and dehydration. When fluid balance was restored and prednisone given to control the acute episode, the urea nitrogen level returned to normal in these patients. The three patients with long-standing azotemia showed no improvement when steroid was given.

Prior to treatment, hyponatremia occurred in five patients and hyperkalemia in three, and there were no consistent changes resulting from prednisone therapy, although improvement in these findings did occur in some cases. There was a slight rise in the serum carbon dioxide content in most patients, averaging 3 mEq. per liter, and acidosis, which was present in two patients, improved. Edema was present in three of the patients with severe renal disease at the time prednisone therapy was begun. Weight loss occurred in all three of the edematous patients, averaging 4.2 kg. (9.2 lb.), and a gradual disappearance of the edema was noted in one case. In the two patients with marked albuminuria, hypoalbuminuria, and edema, no significant improvement occurred. The effect of therapy on the serum protein levels will be discussed presently.

Retinopathy was present in three patients, and gradual clearing of the small hemorrhages and exudates occurred in one patient. Another patient had considerable arteriolar narrowing and irregularity, as well as hemorrhages and exudates. These findings were increasing rapidly and marked papilledema appeared before prednisone therapy was begun. No further change in the retinal picture occurred after prednisone therapy was started, although this patient did develop hypertensive encephalopathy. The blood pressure was elevated in three patients with severe renal disease at the time prednisone therapy was begun. No significant changes in blood pressure levels occurred in these or other patients during treatment.

Effect on Gastrointestinal Manifestations.—Nausea, vomiting, dull upper abdominal pain, and epigastric tenderness were present in several patients and responded well to treatment with prednisone (table 2). Hepatomegaly was present in four patients but was not marked in any. Return of the liver to normal size occurred in three patients after two to four weeks of therapy. Icterus associated with marked malaise, nausea, vomiting, epigastric discomfort, and an enlarged, tender liver appeared in one patient immediately before prednisone therapy was begun. The serum bilirubin level rose to 2.6 mg. per 100 cc., alkaline phosphatase rose to 4.0 Bessy-Lowry units, the cephalin flocculation test became strongly positive (3+), and thymol turbidity was 8 units. These findings gradually subsided while the patient received prednisone (30 mg. per day). She left the hospital after three weeks of therapy but continued to take prednisone at home. Upon readmission three weeks later, all liver function tests, including sulfobromophthalein (Bromsulphalein) retention, were within normal limits. The icterus was probably due to an intercurrent, acute, viral hepatitis (other cases of infectious hepatitis appeared in hospital personnel at the same time). Abnormal cephalin flocculation and thymol turbidity were also present in the serum of two other patients, without other evidence of impaired liver function. The thymol turbidity became normal, but a positive (2+) cephalin flocculation reaction persisted after six weeks of therapy with prednisone in both instances. No patient in this series showed a positive serologic test for syphilis.

Effect on Central Nervous System Manifestations.—Headache was present in six patients and was associated with hypertension in three of these (table 2). In the three patients in whom it was not associated with hypertension, headache cleared promptly with prednisone therapy. Seizures occurred in two patients before prednisone was administered. These were associated with loss of consciousness and consisted of a focal onset progressing to generalized clonic and tonic movements. These two patients improved during prednisone therapy, but one required continuation of barbiturates in order to prevent seizures. A third patient developed convulsive seizures during prednisone therapy. She had marked hypertension and increasing retinopathy before this steroid was given, and the seizures seemed to be due to an episode of hypertensive encephalopathy, which subsided during treatment with hypotensive agents.

Mental changes were present in two patients before prednisone therapy; one had marked confusion, impairment of memory, and episodes of disorientation and the other had brief episodes of loss of consciousness, involuntary movements, and loss of ability to concentrate. Both patients showed improvement when given prednisone, although some mental impairment persisted in the former patient. Electroencephalograms were obtained in eight patients in this series and five were found to be abnormal; these consisted of the patients with seizures and those with mental changes. The tests were repeated on four of these patients after six weeks more of prednisone therapy, and no improvement was found in any case.

Effect on Hematological Manifestations.—Leukopenia was present in eight patients, with total white blood cell counts ranging between 2,000 and 4,000 cells per cubic millimeter (table 2). In six of these patients the white blood cell count rose above 5,000 after periods of prednisone therapy ranging between one and six weeks. Eight patients had a definite anemia (hematocrit value below 38%), and the average hematocrit value for the entire group was 32%. Although some rise occurred during therapy in six of these patients, the hematocrit value reached 38% in only three and the average rise in hematocrit value during therapy was 5%. This peak was usually reached after three weeks. In the three patients with renal failure, there was a gradual but progressive fall in hematocrit value during the entire period of hospitalization. None of the patients in this series had a positive Coombs' test or clinical evidence of acute hemolysis.

Effects on Serum Constituents.—All 10 patients in this study had serum albumin levels below 3.5 gm. per 100 cc., and four had serum globulin levels above 3.5 mg. per 100 cc. (table 2). In no case did the levels of the protein fractions return to normal during prednisone therapy, although some changes did occur. The serum cholesterol level had been elevated in two patients who had albuminuria and edema. A rise in serum cholesterol, averaging 79 mg. per 100 cc., occurred in 8 of the 10 patients during prednisone therapy. Similar changes have been noted during prednisone and prednisolone therapy of rheumatoid arthritis.[18] Changes in the nonprotein nitrogen and electrolyte constituents of serum have already been mentioned.

Effect on Over-All Status of Patient.—Most of the patients were started on prednisone therapy at a time when they were acutely ill with symptoms of relapse that followed reduction in dosage of the older steroids. Marked and early symptomatic improvement occurred, therefore, as the systemic manifestations of the illness were controlled by prednisone. When the maintenance dose had been reached, eight of the patients felt that they were stronger, free of annoying minor symptoms, and functionally improved, in contrast to their status on previous therapy. The patients who had had frequent exacerbations of the disease due to escape from steroid suppression were better controlled by prednisone therapy during the period of observation. On the other hand, those patients with serious renal disease showed no improvement in their clinical status or in the results of the tests of renal function that were performed. Similarly, patients with evidence of cardiac involvement due to lupus erythematosus showed no significant improvement. The manifestations of lupus erythematosus that were observed to be refractory to therapy with prednisone are summarized in table 3.

Follow-Up.—Periods of observation have extended for between two and eight months, averaging four months. During this time, two of the patients with severe renal disease died in uremia. The other patients have all maintained whatever improvement occurred after transfer to prednisone therapy.

Side-Effects.—Minor undesirable side-effects were seen in all 10 patients. These included minor mental changes, such as transient euphoria in two and irritability in one patient. Also, facial rounding occurred in all 10, amenorrhea in 3, mild hirsutism in 2, epigastric discomfort in one, and acneform eruption in one. No serious side-effects, however, were observed, and it was not necessary to discontinue use of the drug in any case. It should be mentioned, however, that serious side-effects have been observed with prednisone and prednisolone in the treatment of a series of patients with rheumatoid arthritis.[2] These included the occurrence of peptic ulcer, psychosis, compression fractures of vertebrae, and alteration of glucose tolerance. In these patients with lupus erythematosus, however, gastrointestinal x-rays and glucose tolerance tests were done every six weeks during the period of the study, but no abnormalities were found.

COMMENT

Several comprehensive studies of the effects of cortisone and corticotropin therapy on systemic lupus erythematosus have been published.[3] There has been general agreement concerning the efficacy of these drugs in the treatment of this disease. Fever, arthritis, lymphadenopathy, mucocutaneous manifestations, as well as pulmonary manifestations, have improved with adequate dosage readily. Cardiac abnormalities and hepatosplenomegaly, however, have responded with greater variability. Cortisone or corticotropin administration was accompanied by an increase in white blood cells when leukopenia had occurred and by some correction of the anemia, hypoalbuminemia, hyperglobulinemia, and increased erythrocyte sedimentation rate. Disappearance of urinary abnormalities was observed in one series [3b] but not in another.[3a] Harvey and associates [3c] have reported decrease in albuminuria or hematuria in about 50% of cases, frequently associated with subsidence of an acute phase of the disease. Little improvement was noted in patients with the nephrotic syndrome.[3a] Positive cephalin flocculation tests and thymol turbidity tests have returned to normal and reduction in sulfobromophthalein retention has been noted. Dubois and others [3a] reported disappearance of L. E. cells from peripheral blood during remission, but this was not confirmed by Soffer and collaborators.[4] Harvey noted disappearance of L. E. cells in only 5 of 46 cases, and these 5 exhibited few L. E. cells prior to steroid therapy.

TABLE 3.—*Manifestations of Systemic Lupus Erythematosus Refractory to Therapy*

Systemic	Renal	Pulmonary and Pleural	Cardiac	Central Nervous System
L. E. phenomenon Anemia Elevated erythrocyte sedimentation rate Low serum albumin Adenopathy	Edema Hypertension Retinopathy Proteinuria Hematuria Cylindruria Azotemia Electrolyte abnormalities	Rales often diminish but do not usually disappear	Enlarged heart Abnormal electrocardiogram	Abnormal electroencephalogram

Cortisone and corticotropin therapy in systemic lupus erythematosus has been frequently associated with complications. Besides the usual Cushing-like changes, cardiovascular complications have been present, especially hypertension, fluid retention, and congestive heart failure. Some form of mental aberration has been noted in from one-half to two-thirds of the cases, and psychoses have been seen with some frequency. Convulsions occurring in the course of this disease may at times be attributable to cortisone therapy. However, most of the side-effects resulting from therapy have been reversible and are alleviated by reduction of the dose or discontinuation of use of the drug. The over-all effect of cortisone and corticotropin on prognosis and prolongation of life is believed by Dubois and associates to be slight. However, Haserick [5] states that these drugs not only have dramatic effect in the acute disease but actually prolong life. At the time of their review, Harvey and associates believed the data on this point insufficient to permit a valid conclusion.

This study of the effects of prednisone and prednisolone in the treatment of systemic lupus erythematosus is based on 10 cases followed for an average period of only four months, and the observations made must be viewed with these limitations in mind. The results indicate that the effects and limitations of prednisone closely resemble those of cortisone, hydrocortisone, and corticotropin. These agents are capable of suppressing the acute toxic manifestations of the disease, including fever, arthritis, malaise, and anorexia, and can tide a patient over a severe exacerbation. In addition, they may suppress to a varying degree, and usually incompletely, pulmonary, pleural, cardiac, and central nervous system manifestations of the disease. Renal pathology in particular does not seem to be significantly influenced by therapy with either the new or the older steroids.

Prednisone and prednisolone have been found to be approximately four times as potent as cortisone and hydrocortisone in controlling these steroid-sensitive manifestations of lupus erythematosus, thus resembling the comparative potency found in the treatment of rheumatoid arthritis.[6] Dose for dose, however, there is a comparable incidence of undesirable side-effects, with the notable exception of sodium and water retention and the production of hypopotassemia. The lack of salt-retaining effect indicates that prednisone and prednisolone should have a significant advantage over the other steroids in the treatment of patients with lupus erythematosus, who have cardiac or renal involvement, since these drugs will not accentuate a tendency toward fluid retention or electrolyte imbalance. The three patients with edema due to renal disease all lost weight, and one lost the edema entirely when transferred to prednisone, although there was no significant effect on the underlying renal disease. Further, the fact that a low-salt diet is not necessary and supplementary potassium need not be given when these drugs are administered constitutes an additional advantage.

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[2] Footnotes 1*b* and *c*.

[3] (*a*) Dubois, E. L., and others: Corticotropin and Cortisone Treatment for Systemic Lupus Erythematosus, J. A. M. A. **149**: 995 (July 12) 1952. (*b*) Soffer, L. J.; Elster, S. K., and Hammerman, D. J.: Treatment of Acute Disseminated Lupus Erythematosus with Corticotropin and Cortisone, A. M. A. Arch. Int. Med. **93**: 503 (April) 1954. (*c*) Harvey, A. M., and others: Systemic Lupus Erythematosus, Medicine **33**: 291 (Dec.) 1954. (*d*) Soffer, L. J.; Ludemann, H. H., and Brill, G.: The Effect of Corticotropin and Adrenal Steroids on the Management of Acute Disseminated Lupus Erythematosus, Ann. New York Acad. Sc. **61**: 418 (May 27) 1955.

[4] Footnotes 3*b* and *d*.

[5] Haserick, J. R.: Effect of Cortisone and Corticotropin on Prognosis of Systemic Lupus Erythematosus, A. M. A. Arch. Dermat. & Syph. **68**: 714 (Dec.) 1953.

[6] Footnotes 3*a* and *b*.

SUMMARY AND CONCLUSIONS

In a study of 10 patients with lupus erythematosus followed for an average period of four months, prednisone and prednisolone have been found to be potent suppressive agents. They are capable of diminishing the fever, chills, malaise, anorexia, arthritis, rash, mucous membrane lesions, cough, pleuritic and precordial pain, chest wall tenderness, pleural and pericardial friction rubs, pulmonary rales, abdominal pain and tenderness, headache, convulsive seizures, leukopenia, elevated sedimentation rate, and C-reactive protein. Renal abnormalities, including proteinuria, hematuria, seen microscopically, cylindruria, and azotemia, improved only in those instances in which the abnormalities had increased or appeared during an acute exacerbation of the disease, usually accompanied by fever and dehydration. Serious renal disease in these patients was not influenced by these drugs, and two patients died in uremia. No significant alterations of blood pressure were observed. Edema was noted to gradually diminish during prednisone therapy. Leukopenia improved in most instances, but anemia did not, and alterations in serum albumin and globulin levels were only slight. These steroids were found to be approximately four times as potent as cortisone and hydrocortisone and did not cause salt or water retention or hypopotassemia. Minor undesirable side-effects have appeared.

In general, the effectiveness and limitations of prednisone and prednisolone in the treatment of systemic lupus erythematosus parallel closely those of cortisone and corticotropin, with the exception that the new steroids do not cause sodium and water retention or potassium loss when administered in moderate therapeutic doses.

POSTURE AND CERVICOBRACHIAL PAIN SYNDROMES

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The accurate diagnosis and effective treatment of disabilities manifest by cervicobrachial pain and paresthesias is difficult. The difficulty has been increased by the myriad of reports dealing with cervicobrachial syndromes, because of a tendency to regard each of them as a specific clinical entity. Lack of notable success with specific treatment as in the scalenus anticus syndrome has tended to discredit the syndrome without otherwise accounting for the patient's disability. To fill this void the criteria for a diagnosis of a protruded cervical intervertebral disk are at times stretched beyond their just limits or a functional etiology is invoked to explain such symptoms. To the confusion of examiners, specificity of name in cervicobrachial syndromes is not matched by a specificity of either symptoms or signs.

Many of the cervicobrachial syndromes regularly listed in diagnostic classifications are not clinical entities but rather are isolated aspects of a single clinical problem. The common factor in a variety of cervicobrachial syndromes is posture. Postural factors are the commonest primary cause of disability of this type, and the correction of postural stress will contribute to the relief of symptoms. Naffziger and Grant,[1] Gage and Parnell,[2] Hansson,[3] Freiberg,[4] DePalma,[5] and others have written of the importance of postural factors in the scalenus anticus syndrome. Falconer and Weddell[6] stated that postural changes without anatomic defect precipitated neurovascular symptoms in their costoclavicular syndrome. McGowen and Velinsky[7] pointed out that exercises designed to strengthen the trapezius and levator scapulae muscles were curative in the same type of problem. Michele[8] indicated that postural changes with round shoulderness and drooping of the shoulder girdle were the primary underlying factors in the scapulocostal syndrome. Walshe and co-workers[9] indicated that posture was a primary factor in first rib syndromes. These observations are scattered thru a voluminous literature and have not received the recognition they deserve except by Haggart[10] in 1948, who emphasized the value of conservative treatment. The importance of posture in a variety of less well known and primarily orthopedic cervicobrachial syndromes is generally acknowledged. In an effort to develop a more practicable clinical approach to the problem of cervicobrachial pain and paresthesias, it seems justifiable to define a diagnostic category based on the factor common to so many cervicobrachial syndromes, i. e., the postural factor. Postural myoneuralgia is a descriptive term for this category.

SYMPTOMS

Pain and/or paresthesias involving a cervicobrachial distribution and due to postural stress are not peculiar to individuals with any particular physical habitus. Oc-

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Read before the Section on Nervous and Mental Diseases at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 9, 1955.

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5. DePalma, A. F.: Scalenus Anticus Syndrome Treated by Surgery and Skeletal Traction, Am. J. Surg. **76**: 274-280 (Sept.) 1948.
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cupational factors are very important contributing causes to the onset of symptoms. Onset following trauma is very common, or after unusual physical exertion as occurred so often in service personnel during the war. It is common in middle-aged women, but it is also seen in young girls, often during or just after pregnancy, and it is not rare in men. The principal complaint may be either pain or paresthesias; often both are present. These are usually referred to the upper extremity but may involve primarily the anterior chest wall, the shoulder, the interscapular area, the midcervical or cervicodorsal area of the spine, the midthoracic or thoracolumbar area of the spine, or the occipital area of the skull. The discomfort is usually worse at night, often awaking the patient from sleep, and it is usually present on awakening in the morning. A history of sleeping with the arms hyperabducted is occasionally of significance. The complaint may be unilateral or bilateral. Precordial pain may be the principal complaint. Interscapular pain may be present alone, or any combination of the complaints mentioned above. Peripheral radiation into the upper extremity may occur along either the ulnar or radial border of the arm and forearm and may involve the entire arm, the hands alone, or part of the hand. The peripheral pattern of pain and paresthesias may suggest a dermatome or root distribution. Activity involving elevation of the upper extremities usually makes the discomfort worse. Spontaneous remissions are common.

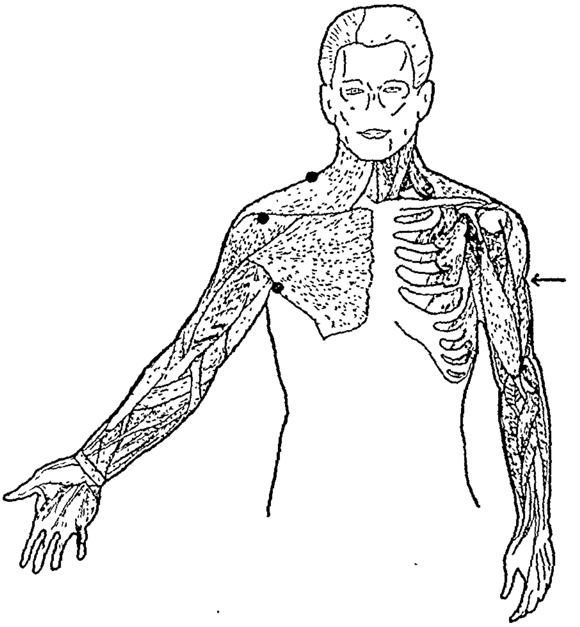

Fig. 1.—Common anterior areas of point tenderness (muscle).

Though such a history is characteristic of a postural disorder, it is obviously not specific and will occasionally be elicited in conditions other than that under primary consideration in this paper. These symptoms, however, include a variety of syndromes in which posture is of primary significance.

SIGNS

A tilt of the shoulder girdle is often present. One shoulder may be carried lower than the other when the patient is observed in a relaxed sitting position. The higher shoulder is usually, but not always, on the painful side. Not infrequently the patient will shift his posture so that a shoulder noted to be elevated at one time during examination will be found to be lower than its opposite a short time later. In relatively acute cases the shoulders are usually level.

Neurological examination often reveals hypesthesia and hypalgesia over a distribution suggestive of a dermatome pattern. An ulnar distribution is most common. There may be objective weakness of the hand or forearm muscles and occasionally atrophy of muscle groups in the hand, the thenar eminence, or the interossei. Early morning swelling of the hands may be noted by the patient.

Muscle tenderness to point pressure is almost always present in some part or all of the pattern shown in figures 1 and 2. There is little rationale to description of isolated pectoral tenderness as a pectoral syndrome or of upper and lower trapezius syndromes depending on the location of point tenderness over that muscle. They are all part of a postural disorder, and multiple tender areas are usually found if carefully sought. Tenderness over the scalenus anticus muscle is part of the pattern. This is muscle tenderness, and the diagrams are of no significance except to indicate convenient points at which to test individual muscles that are usually tender. Pressure over the coracoid process tests the pectoralis minor. The muscle tenderness may be unilateral or bilateral; it is usually worse on the side of the principal complaint. Holden, Murphy, and Portmann [11] cautioned that one must be careful to differentiate and not section the scalenus anticus muscle of patients who have what they called a "diffuse myositis" involving the trapezius,

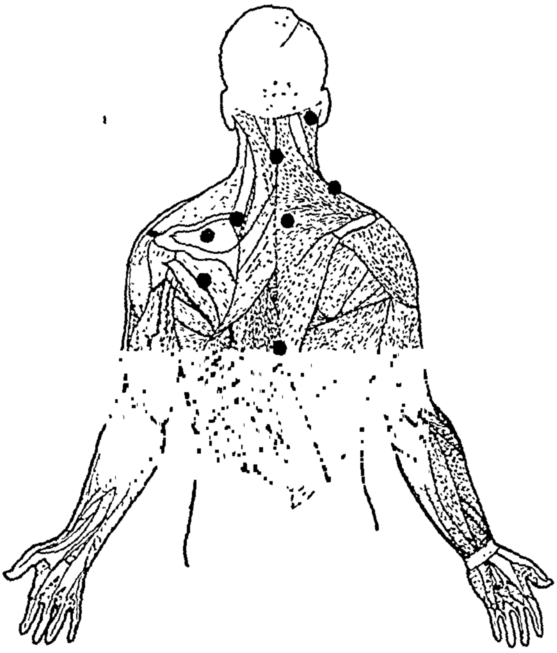

Fig. 2.—Common posterior areas of point tenderness (muscle).

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10. Haggart, G. E.: Value of Conservative Management in Cervicobrachial Pain, J. A. M. A. 137: 508-513 (June 5) 1948.

11. Holden, W. D; Murphy, J. A., and Portmann, A. F.: Scalenus Anticus Syndrome: Unusual Diagnostic and Therapeutic Aspects, Am. J. Surg. 81: 411-416 (April) 1951.

rhomboid, and pectoral muscles. Such a "myositis" is a feature of the postural disorder, and a careful search for it should be a part of every examination. One or several points of tenderness are equally significant.

Reduction of the radial pulse amplitude to palpation and a bruit on auscultation over the subclavian artery are usually present when the arm is abducted to right angles with the thorax with the elbow flexed 90 degrees. The bruit may be unilateral or bilateral and is usually more prominent on the side of the principal complaints. It is of the utmost importance that auscultation be carried out, as a loud bruit may be produced by abduction of the arm without palpable change in the radial pulse. Eaton[12] has emphasized that the vascular tests and maneuvers associated with various cervicobrachial syndromes are not specific and that many of them cannot be accurately reproduced from one patient to the next. Wright[13] and others have found a high incidence of radial pulse obliteration with more extreme hyperabduction of the arm in normal individuals. It is well, therefore, to use this single maneuver and to evaluate it carefully in the light of the history and the other physical signs. One cannot deduce compression at any particular point when a bruit is elicited, but it does indicate that in a given patient the neurovascular bundle is easily compressed by elevation of the arms. Rarely, a bruit is present even when the patient's arms are relaxed at the side of the body. Remarkably enough, the bruit often disappears when the patient is relieved of his discomfort; as often, its intensity is considerably reduced on recovery though the bruit is not eliminated, and, not infrequently, it is unchanged despite clinical recovery. This clearly demonstrates its lack of specific significance in relation to the clinical complaint.

X-ray examination of the cervical spine and thoracic outlet will either show no abnormalities or show straightening of the normal cervical curve. The latter does not indicate a protruded cervical disk or foraminal compression, but only muscle spasm of nonspecific origin.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis need not be discussed at length, inasmuch as all of the conditions to be differentiated from a postural disorder have been discussed at length by many writers. It is ordinarily not difficult to differentiate this syndrome from a cervical intervertebral disk protrusion, but occasionally it cannot be done on clinical grounds and myelography will be necessary. Median nerve compression within the carpal tunnel will not cause confusion if one is familiar with that syndrome. Periarthritis of the shoulder and tendonitis must always be excluded. Arthritic changes in the cervical spine do not exclude a postural disorder, nor does the presence of cervical ribs or other anomalies, though they must be evaluated individually.

The diagnosis of a postural disorder rests on (1) a characteristic history, (2) shoulder girdle tilt, (3) all or some part of the characteristic pattern of muscle tenderness to point pressure, and (4) a bruit over the subclavian artery when the arm is abducted. One or more of these elements is often lacking, and none is specific.

It is likely that patients with postural stress causing signs and symptoms consistent with the pattern above constitute the largest group among those with cervicobrachial complaints. It would include many cases that in past years were diagnosed as due to the scalenus anticus syndrome. A scalenus anticus syndrome requiring surgery is not common, and consideration of postural myoneuralgia in differential diagnosis will improve the mediocre surgical statistics dealing with scalenus section.[14] It will be apparent to all familiar with the history of the scalenus anticus syndrome that consideration of this postural disorder is of extreme importance in the evaluation of such procedures as resection of the clavicle for cervicobrachial pain and the recent extension of the indications for median nerve decompression to this same type of disorder.

The acroparesthesia syndrome of Schultz will come within the category of the postural disorder, and it is amenable to treatment. The same is true of the brachialgia statica paresthetica syndrome of Wartenberg and the so-called brachial neuritis of pregnancy. The costoclavicular compression syndrome is part of the same clinical entity, a postural disorder, as well as "normal" and some "abnormal" first rib syndromes. The scapulocostal syndrome of Michele is not an entity in itself, but part of this same clinical pattern. The problem of differential diagnosis will be simplified by inclusion of these syndromes in one diagnostic category. Other less familiar

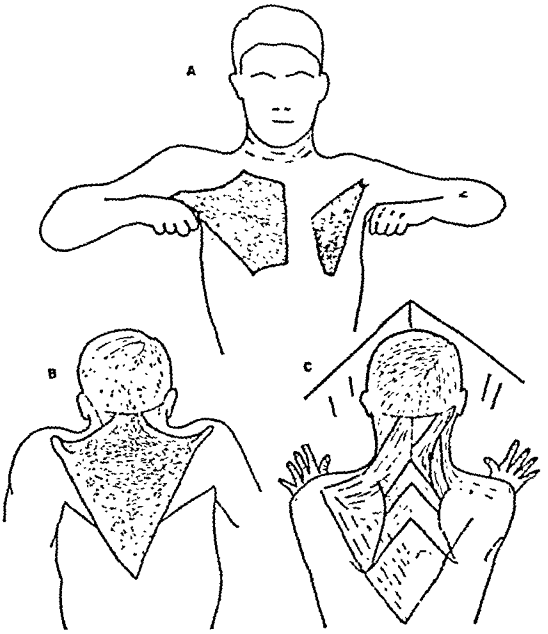

Fig. 3.—Three exercises for treatment of postural myoneuralgia.

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[12] Eaton, L. M.: Neurologic Causes of Pain in the Upper Extremities, with Particular Reference to Syndromes of Protruded Intervertebral Disk in the Cervical Region and Mechanical Compression of the Brachial Plexus, S. Clin. North America **26:** 810-833 (Aug.) 1946.

[13] Wright, I. S.: The Neurovascular Syndrome Produced by Hyperabduction of the Arms: Immediate Changes Produced in 150 Normal Controls, and Effects on Some Persons of Prolonged Hyperabduction of Arms as in Sleeping, and in Certain Occupations, Am. Heart J. **29:** 1-19 (Jan.) 1945.

[14] Adson, A. W.: Cervical Ribs: Symptoms, Differential Diagnosis and Indications for Section of Insertion of the Scalenus Anticus Muscle, J. Internat. Coll. Surgeons **16:** 546-559 (Nov.) 1951. Raaf, J.: Surgery for Cervical Rib and Scalenus Anticus Syndrome, J. A. M. A. **157:** 219-223 (Jan. 15) 1955.

syndromes also are clearly a part of a postural disorder and recognized individually as such by the orthopedists who see them most commonly, though their designation as specific syndromes persists by usage.

TREATMENT

To recommend a simple exercise program as treatment for what has been regarded as a variety of disorders may seem like oversimplification. There is ample support for this position, however, for scattered through the literature one finds, repeatedly, the opinion that a simple exercise program is probably the most important factor in treatment of various cerevicobrachial syndromes. This aspect of treatment is emphasized here and extended to cover a larger diagnostic category.

The average patient requires only office instruction in exercises and posture and can carry out a satisfactory corrective program at home. In severe and protracted cases hospitalization may be indicated to afford continuous observation and support of the patient as well as the cooperation of the physical therapy section. The patient should be instructed to carry out three simple exercises, and these should be demonstrated to the patient by the physician. The first exercise consists of bracing the shoulders back as though to approximate the medial scapular borders in the midline (fig. 3*A*). The second consists of bracing the shoulders upward as though attempting to touch the shoulders to the ears (fig. 3*B*). The third is a "push-out," done by standing about 2 ft. away from and facing into a corner with one hand on each wall at shoulder level (fig. 3*C*). It will be found that many patients cannot touch the wall with their chest in this latter maneuver and will require several days of exercises before they can do so. Indeed, this is so common that the maneuver can almost be used as a diagnostic test, inasmuch as pectoral shortening is usually present. The exercises stretch the pectoral muscles and strengthen the upper trapezius, rhomboids, levator scapulas, and serratus muscles. Though this group of exercises is open to some objections from the theoretical standpoint, it is simple, easy to remember, and, most important of all, effective.

Each exercise should be done 5 to 10 times hourly through the day if the patient's physical status and daily activities permit. Patients should be informed that the first few days of exercises may make them somewhat more uncomfortable temporarily. They must be admonished to assume an erect posture at all times between exercises. Resumption of old postural attitudes between the exercise periods is the commonest cause of failure to improve. Improvement is usually marked within two weeks, and failure to improve after three weeks calls for a careful review of the entire problem.

Cervical traction is helpful at times, to help relax tight muscles, but it is not remedial and should not be considered a primary method of treatment. Heat and massage are helpful, and mild sedation and analgesics may be helpful in the early phase of treatment.

SUMMARY

A revised concept of cervicobrachial pain and paresthesia problems includes a larger number of these problems under the diagnostic classification of postural myoneuralgia. Such a concept will simplify the diagnosis of this type of disorder, improve the selection of patients in whom surgical intervention may be indicated, and provide effective and simple treatment for some patients who would otherwise be treated inappropriately or be relegated to a diagnostic category that implies that no effective treatment is available.

USE OF RESERPINE IN PSYCHOGENIC RHEUMATISM, OSTEOARTHRITIS, AND RHEUMATOID ARTHRITIS

A PRELIMINARY REPORT

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The various arthritic diseases, especially those involving the periarticular structures and more definitely the muscles and associated structures, are subject to, and generally exacerbated by, emotional stimuli. This is well illustrated in works on psychosomatic medicine. In this respect the American Rheumatism Association has recognized such a diagnosis under the heading "psychogenic fibrositis or rheumatism" or, better, "psychoneurotic musculo-skeletal complaints." The incidence is not small. In one study of 500 consecutive civilian patients,[1] the diagnosis of psychogenic rheumatism was made in 13.4%, osteoarthritis in 25%, rheumatoid arthritis in 20.4%, and primary fibrositis in 18.2%.

The symptoms these patients have are in the nature of fibromyalgia, with areas of tenderness over muscle and bone; pain, stiffness, and limitation of motion of the muscles and joints; and subjective feelings of swelling. It has further been shown that in musculoskeletal disorders on a psychosomatic basis[2] there are "characteristic areas of tenderness—the dorsal radial forearms, upper part of the trapezius muscle at the shoulder and posterior neck regions, lateral upper arms, pectoral areas, low back, thigh, lower third of leg and tarsal areas. The degree of moderately firm pressure needed to elicit this tenderness varies but is never sufficient to be painful to the normal individual." In addition the symptoms of primary organic arthritic disorders may be aggravated by

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The reserpine used in this study was supplied as Serpasil by Ciba Pharmaceutical Products, Inc., Summit, N. J.

[1] Boland, E. W.: Psychogenic Rheumatism: The Musculoskeletal Expression of Psychoneurosis, California Med. 68: 273, 1948.

[2] Irvine, J. H.: Psychosomatic Diagnosis of Chronic Musculoskeletal Pain, read before the Clinical Meeting of the New York State Rheumatism Association, New York, April 16, 1952.

emotional stimuli. It has been suggested[3] "that rheumatoid arthritis is an organic psychosomatic disease with an added genetic factor and that patients having the disease show emotional inhibition with obsessional trends." Most authorities, however, do not agree with this but do feel that psychosomatic emotional disturbances may be associated with exacerbations.

It has also been reported that fibromyalgia in association with neurotic emotional states is common in 70% of patients having osteoarthritis.[2] This is well illustrated in two patients of similar stature showing typical osteoarthritic changes in the spine on x-ray examination, only one of whom has symptoms of low back pain and spasm of muscles. Sometimes a psychiatric history will reveal emotional difficulties in the patient presenting symptoms. The psychopathology of these fibromyalgic phenomena has been summed up as follows: There is (1) a psychoneurotic disposition, (2) an excitatory emotional conflict, and (3) a restriction of outward expression of the conflict. "Smouldering resentment has been stated to be the common basic psychopathology in psychogenic rheumatism."[4] The psychophysiological mechanisms involved have not been fully identified, but it has been suggested that emotions affect the autonomic nervous system either directly or through the medium of the endocrine system and thereby produce increased muscle tension, vasospasm, and metabolic changes in organs and in the musculoskeletal system.[5] In this respect it has been noted that corticotropin (ACTH) or cortisone may relieve these fibromyalgias.

In the past year there has appeared a series of reports dealing with alkaloids of Rauwolfia serpentina, especially reserpine. Pharmacological studies[6] revealed an action on the autonomic nervous system, possibly by a partial suppression of activity of the hypothalamus. In this respect it has been established that the emotional response is mediated through the hypothalamic centers. It was concluded that reserpine exerts a calming and sedative action in a wide variety of animal species. The sedation, reduced emotional response, peripheral autonomic alterations, and circulatory changes are due to an alteration of sympathetic-parasympathetic balance by partial suppression of sympathetic predominance at the hypothalamic level.

Clinical investigations demonstrated that reserpine had a sedative and tranquilizing effect and reduced the emotional and mental tensions of geriatric patients.[7] Such actions would be of value in relieving the causative stimuli perpetuating the fibromyalgias of psychogenic rheumatism and that component of the symptoms of osteoarthritis due to psychosomatic stimuli. In addition,[8] it was reported that the drug reduced anxiety and obsessive-compulsive drives and could overcome excessive inhibition and reticence. In the beginning of this paper is a quotation[3] to the effect that such neurotic traits distinguished the personality complex of patients having rheumatoid arthritis. Again assuming that such stimuli may exacerbate some musculoskeletal symptoms of rheumatoid arthritis, the action of reserpine in reducing the severity of these neurotic characteristics would be most welcome.

SELECTION OF PATIENTS AND INITIAL THERAPY

In view of these reports it appeared that the effect of reserpine on patients having rheumatism and arthritis should be investigated. In the beginning, it was intended for use only in cases of "pure" psychogenic rheumatism, but, in recognition of the importance of psychosomatic musculoskeletal phenomena on some of the symptoms and course of the other arthritides, it was decided to include these. It has been stated,[5] "Most physicians themselves have experienced muscular aching and fatigue in one or another region following periods of prolonged emotional tension."

The cases were divided as follows: psychogenic rheumatism, 7; osteoarthritis, 16; rheumatoid arthritis, 4; and osteoarthritis together with rheumatoid arthritis, with the former predominating, 3. For the most part the patients were initially given a 0.1 mg. tablet of reserpine (Serpasil) twice daily (preferably one tablet at bedtime and one tablet on arising). When there was no response after one or two weeks, the dose was increased to 0.1 mg. three or four times daily and in some cases to 0.25 mg. tablets twice daily. In patients who showed a response, some were given a placebo (identical in appearance to the reserpine tablets) for a time.

RESULTS AND FURTHER THERAPY

Psychogenic Rheumatism.—In the series of cases of psychogenic rheumatism, five of the seven patients demonstrated beneficial effects, one had no response, and one showed an equivocal response. Among the five showing a good response was a man who had pain in the hands and back that had not improved with administration of acetylsalicylic acid. He was given reserpine, 0.1 mg. twice daily, for one week, followed by the same dose three times a day for a second week, when he reported that his hands were better and not as stiff as before. He was then given placebo tablets three times daily for two weeks; during the first week he continued to feel well but in the second week he again had pain and stiffness in the hands and neck and was nervous. At this time he was treated with reserpine, 0.25 mg. twice daily, and a week later said that he felt good, that his hands were less swollen, and that his back was better.

In a similar case another man had had low back pain for three years. Previously he had been given courses of phenylbutazone, cortisone in doses of 100 mg. a day, phenobarbital in doses of 0.03 gm. three times daily, and acetylsalicylic acid in doses of 0.3 gm. four times a day, with no relief. When he was first treated with reserpine, he complained of pain in the back, neck, and arms, with muscle tenderness. He was given reserpine, 0.1 mg. twice a day for one week, and the following two weeks the same dose three times a day with no effect. When the dose was finally increased to 0.25 mg. twice a day, he reported that he felt better and that muscle pain was present but it was less intense. He was then given placebo tablets twice a day and said that he felt so bad that he had to stay in bed a few days. On the other hand, a young man with typical tender muscles who had been treated at the mental hygiene clinic but had shown no response to aspirin or phenobarbital showed no response to reserpine administered in doses of 0.1 mg. twice and three times daily. Perhaps the dosage should have been increased.

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[3] Halliday, J. L.: Psychosomatic Medicine and the Rheumatism Problem, Practitioner **152**: 6, 1944.

[4] Weiss, E.: Psychogenic Rheumatism, Ann. Int. Med. **26**: 890, 1947.

[5] Boland, E. W.: Psychogenic Factors in Rheumatic Disease, in Hollander, J. L.: Comroe's Arthritis and Allied Conditions, ed. 5, Philadelphia, Lea & Febiger, 1953.

[6] Plummer, A. J., and others: Pharmacology of Rauwolfia Alkaloids, Including Reserpine, Ann. New York Acad. Sc. **59**: 8, 1954.

[7] Harris, R.: Clinical Use of Reserpine (Serpasil) in Geriatrics, Ann. New York Acad. Sc. **59**: 95, 1954.

[8] Kline, N. S.: Use of Rauwolfia Serpentina Benth. in Neuropsychiatric Conditions, Ann. New York Acad. Sc. **59**: 107, 1954.

Osteoarthritis.—Only 5 of the 16 patients with osteoarthritis showed an adequate result. One such patient was a woman who was very nervous and complained of pain and stiffness of shoulders and neck. When she was given reserpine, 0.1 mg. twice daily, for one week, she reported that she felt better and her pains were gone. She was then given placebo tablets twice daily for two weeks; during the first week she continued to feel fine, but during the second week her back became extremely painful and she could not bend over. At this time she was again given reserpine, 0.1 mg. twice a day, and a week later said she was 80% better and that she could bend down and kneel. The following week with the same dose her improvement continued. She said it was "the best medicine" she had taken and she "could sleep nights." Another patient in this group showed a response during the first two weeks of receiving reserpine; when he was given a placebo for one week his symptoms of ankle and arm pain returned. Therapy was again instituted with reserpine, and his symptoms abated; these came back when he was again receiving placebo therapy.

In evaluating results, one must remember the desire of patients to recover, especially when they know they are receiving a new drug. Such a patient was a woman who had had osteoarthritis and Parkinsonism for four years. When treatment with reserpine was started, she had been receiving hydrocortisone, which had not relieved her complaints of stiffness and pain in the left hip and of gross tremor of her hands. After a week of reserpine therapy in doses of 0.1 mg. twice a day, she said she could use her right arm more than before, although the pain in her hip was still present. She was then given placebo tablets and felt so well with them that she continued taking them for four more weeks. Not only did her rheumatism improve but she said most of the tremor of her hands had disappeared and "she was able to sign her relief check." After five weeks of placebo therapy, some of the pain in her hip had returned but the effect on the Parkinsonism continued.

Rheumatoid Arthritis.—In the four cases of rheumatoid arthritis, two patients showed no effect. In one patient who had had the disease for 10 years, there was only a mild beneficial result. In the fourth case, a young man with early rheumatoid arthritis showed a good response. This patient had typical swollen fusiform proximal interphalangeal and swollen metacarpophalangeal joints and could not close his hands. There had been a moderate response to corticotropin and also to cortisone in doses of 50 mg. a day. After one week of reserpine therapy in doses of 0.1 mg. twice a day, he said he slept better and felt better and could close his hands more easily. He was then given placebo tablets twice a day and reported that his hands were stiff and painful and he did not sleep well. When he was again given reserpine in doses of 0.1 mg. three times a day, he said he could close his hands more fully and they were not stiff and he felt he could do more than when he was taking cortisone. He continued on reserpine therapy, 0.25 mg. twice daily, for three weeks. During the first week he had a tooth extracted and he reported that his hands were stiff; the second week was a rainy one and the stiffness continued. During the third week his hands were again limber and pained him only occasionally. This patient is a homosexual and has most of the psychogenic stigmas reported in some cases of rheumatoid arthritis as referred to earlier in this report.[3]

Mixed Rheumatism.—In the three cases of rheumatoid arthritis and osteoarthritis with the latter predominating, two patients showed mild beneficial results with reserpine, one patient reporting that she felt quieter, that her spirits were better, and that she was not as stiff as before. The other said that she slept better, did not have the dizzy spells she had had previously, and her left knee was stronger; however, her right wrist and back were still painful and stiff. The third patient reported that, after two weeks of therapy with reserpine, 0.1 mg. twice a day, she felt better and walked more easily. She was kept on the placebo regimen for four weeks, and her improvement held.

COMMENT

It appears that reserpine is of value in the treatment of psychogenic rheumatism and of some aid in the other arthritides, although not of equal efficacy. It must be pointed out that, in this clinical trial, the drug was used alone to evaluate its actual effect on musculoskeletal complaints. Certainly in the treatment of these diseases additional drugs, such as analgesics, antispasmodics, and hormones; and gold therapy; psychotherapy; and physiotherapy should be continued or instituted where necessary. The manner of action of this drug may be readily explained by its effect at the hypothalamic level in inhibiting those phenomena due to emotional and psychogenic strain that serve to propagate neurogenic and vasomotor stimuli, that in turn cause muscle spasm and other changes in muscle, which in turn cause local tenderness, pain, and stiffness. Thus the attack on these diseases should be threefold: (1) use of analgesic drugs, anti-inflammatory hormones, gold therapy, and physiotherapy, agents which act directly or through other mechanisms on the local phenomena due to organic or psychogenic causes; (2) use of reserpine to minimize those psychogenic stimuli that cause musculoskeletal complaints in pure psychogenic rheumatism and that aggravate the primary organic arthritides; and (3) use of psychotherapy where needed.

The sense of well-being and serenity and general uplifting of spirit due to reserpine may also help in giving the patient a better and more stable approach to his disease, to wit, the symptoms are not as intense or as important. In this respect phenobarbital has also been used in the treatment of the psychosomatic aspects of rheumatism. It is suggested that reserpine be combined with the anti-inflammatory hormones to decrease the hypertension and euphoria that the latter may cause.

SUMMARY

Reserpine (Serpasil) temporarily relieved the musculoskeletal complaints in five of seven cases of psychogenic rheumatism. Reserpine temporarily relieved the musculoskeletal complaints in 5 of 16 patients having osteoarthritis and in 1 of 4 patients with rheumatoid arthritis. In three cases of rheumatoid arthritis and osteoarthritis, the latter predominating, results were mildly beneficial. In some patients the drug is a useful adjunct to the symptomatic treatment of the various arthritides, but no curative effects are claimed. In pure psychogenic rheumatism it should be combined with psychotherapy and analgesic drugs. In the primary organic arthritides it should be added to the analgesic, the anti-inflammatory, and/or gold drugs routinely used, since it may minimize, where they exist, those psychogenic stimuli that cause musculoskeletal complaints that in turn aggravate the primary organic diseases. This study in a limited series of cases indicates that further investigation of reserpine in psychogenic rheumatism and neuroses associated with other arthritides is warranted.

135 E. 65th St. (21).

TREATMENT OF HYPERTENSIVE PATIENTS WITH RAUWOLFIA COMPOUNDS AND RESERPINE

DEPRESSIVE AND PSYCHOTIC CHANGES

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and
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Recently Freis [1] described five cases in which mental depression was observed in hypertensive patients treated with reserpine (Serpasil). The purpose of this report is to describe four more hypertensive patients, two in detail, who were treated with a Rauwolfia alkaloid or reserpine. Mental depression was observed in three of the patients, whereas in the fourth case the diagnosis was a psychotic reaction.

REPORT OF CASES

Case 1.—A 54-year-old married white woman, a veteran, was admitted to the hospital on Nov. 12, 1954, for evaluation of her hypertension and depressive reaction. During a routine physical examination in 1944, she had been found to have hypertension and since then had been treated with cortical depressants such as phenobarbital. In May, 1954, she had been placed on therapy with reserpine, 0.25 mg. four times a day. During the summer she had noticed considerable nasal stuffiness. Her mean blood pressure was 160/105 mm. Hg, and the pulse rate was 60 beats per minute. Although her history revealed a cyclothymic personality with primarily depressive swings of varied intensity, for the first time the patient was deeply disturbed, not only by the depth of her depression but with the fact that she had strange irrepressible homicidal impulses toward a member of her family. Unnerved by these thoughts, she feared impending insanity.

With the exception of a slightly enlarged thyroid, there were no unusual or significant clinical findings. The eyegrounds showed no arteriosclerotic changes. Laboratory results were as follows: white blood cell count, 6,200 per cubic millimeter; hemoglobin level, 15.5 gm. per 100 cc.; sedimentation rate 4 mm. per hour; and hematocrit 49%. The specific gravity of the urine was 1.004, and it contained no albumin or sugar; results of microscopic examination of the urinary sediment were likewise negative. Phenolsulfonphthalein studies showed a 46% excretion in two hours, but only a trace of the dye was detected in the first 15-minute urine specimen. The nonprotein nitrogen level was 27.6 mg., the urea nitrogen level 13.2 mg., the glucose level 90 mg., and the serum bilirubin level 0.7 mg. per 100 cc. The serum amylase content was 160 Somogyi units and the total cholesterol content 255 mg. per 100 cc., with cholesterol esters 61%, calcium 5.5 mEq. per liter, inorganic phosphorus 4.0 mg. per 100 cc., and alkaline phosphatase 2.1 Bodansky units. The serum protein-bound iodine level was 2.8 mcg. per 100 cc. (normal 3.5 to 8.0 mcg. per 100 cc.). The iodine diagnostic study of thyroid function showed 26% uptake, which is within normal limits. The electrocardiogram was within normal limits, as were roentgenograms of the chest and of the upper gastrointestinal tract.

On Nov. 13 the reserpine therapy was stopped. The patient was discharged on Nov. 20 and examined at weekly intervals as an outpatient. The therapy was fundamentally a supportive type of psychotherapy, which included no analytic techniques. On Dec. 23 the patient spontaneously reported that she was much improved and subsequent interviews supported her statement.

In summary, this was a case of mental depression that we feel can be attributed to the use of reserpine. A review of the patient's history suggested a premorbid personality pattern that appeared to have been accentuated by the toxic reaction to the drug. In our experience, we have never observed a case of mental depression that cleared as quickly as did this patient's reaction. It is to be observed that a plateau of maximum improvement was noticed about four weeks following the discontinuance of the drug. This correlates well with the clinical studies, which show that the pharmacological effects of reserpine continue for that long a period after the cessation of therapy.

Case 2.—A 66-year-old white male, a World War I veteran, was admitted to the medical service for evaluation of his mental status. He had been first seen in April, 1951, because of retrosternal pain. At that time, his blood pressure was 200/100 mm. Hg and the electrocardiogram was within normal limits. The total cholesterol level was 410 mg. per 100 cc., and the specific gravity of urine was 1.020.

On July 9, 1954, the patient had been again admitted to the hospital for treatment of high blood pressure, nervousness, and a tremor localized in the right arm. The blood pressure was 180/100 mm. Hg. The heart was then clinically enlarged to the left, which was confirmed by both the electrocardiographic and

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[1] Freis, E. D.: Mental Depression in Hypertensive Patients Treated for Long Periods with Large Doses of Reserpine, New England J. Med. 251: 1006-1008, 1954.

x-ray findings. The specific gravity of the urine was 1.017 and the nonprotein nitrogen level 44.3 mg. per 100 cc. The patient was seen by the neurologist, who felt that he had generalized arteriosclerosis and that the symptom complex was probably consistent with paralysis agitans of the right upper extremity. The ophthalmologist noticed that the superior and inferior temporal arteries in the right retina had a silver-wire appearance. On July 28, 1954, he was placed on therapy with reserpine in a dose of 0.25 mg. four times a day and trihexyphenidyl therapy in a dose of 2 mg. four times a day. He was discharged from the hospital Aug. 26, 1954. On Sept. 4, 1954, the family physician stopped the reserpine therapy and gave the patient a Rauwolfia alkaloid (Raudixin), 50 mg. three times a day. It was during September, 1954, that the patient's wife noticed a change in his mental attitude.

On Jan. 7, 1955, the patient was again admitted to this facility with an acute psychotic reaction. He was hallucinating, had paranoid ideas of reference, and appeared disoriented in all three spheres. His blood pressure was 180/70 mm. Hg. The heart rate was 95. Funduscopic findings continued unchanged, and the results of neurological examination were now completely normal. The electrocardiogram was within normal limits. An electroencephalogram done on Jan. 10 showed a possible diffuse organic brain dysfunction with probably a few more electrical irregularities in the right temporal area. A second electroencephalogram on Jan. 20 showed no change when compared with the initial examination. A spinal tap on Jan. 12 revealed a normal pressure, clear fluid with no cells, a sugar content of 85 mg. per 100 cc., chloride content of 740 mg. per 100 cc., and a total protein level of 150 mg. per 100 cc. Colloidal gold curves and serologic studies showed no abnormalities. A repeat spinal tap on Jan. 20 showed a lowering of the total protein level to 118 mg. per 100 cc. The leukocyte count was 6,000 per cubic millimeter, hemoglobin level 14.3 gm. per 100 cc., sedimentation rate 11 mm. per hour, and hematocrit 48%. The nonprotein nitrogen level was 34.8 mg. per 100 cc., total cholesterol level 210 mg. per 100 cc., and cholesterol esters level 71%. Results of a cold agglutination test and heterophile antibody study were negative. The chest film showed some prominence of the left ventricle. The skull films, however, were normal.

Clinical Course.—As a result of our previous experience, it was felt that the patient might have a toxic psychosis secondary to the use of a Rauwolfia compound. The Rauwolfia therapy was discontinued, and during the period of hospital observation no medicaments were used. He was seen by one of us (E. C. B.) at weekly intervals, and the following notes were made about the changes in his mental status. When first seen on Jan. 11, 1955, the patient was in cuff restraints and he demonstrated little comprehension of the examiner's questions. On occasions, his intended responses were apparently lost in the maze of ongoing ideation, the content of which was predominantly paranoid in nature. The initial impression was a brain syndrome of unknown cause with a psychotic reaction manifested by confusion and delirium, with an impaired awareness of surroundings and higher intellectual functions, probable hallucinations, persecutory delusions, and agitation.

At the time of the first revaluation on Jan. 18, the patient showed some clearing. A cuff restraint was attached to the bed, and the patient stated that he "asked for it" periodically, especially at night. In this and other ways he demonstrated some insight into the fact that he was subject to confusion and subsequent unpredictable behavior. On the occasion of the second revaluation on Jan. 25 no cuff restraint was observed. The patient stated, "I don't need 'em any more." There was nothing in the mental content that coincided with the previously described hallucinations, delusions, or agitation. It was noted that the patient was trying to write letters home and that he was beginning to think about his prospects for being discharged. When seen Feb. 1, 1955, for the third revaluation, the patient continued to be free of any need for restraints. The mental content was free of material suggesting hallucinations or delusions, and a steady improvement in comprehension was noted. There was a continuation of involuntary crying, as had been noted in the two previous examinations, but the patient had now learned to proceed with his conversation in spite of it. A greater preoccupation with home and family was noted. The residual slight impairment of orientation, memory, and intellectual function was attributed to a premorbid chronic brain syndrome presumably of arteriosclerotic origin.

This 66-year-old veteran was admitted to the hospital with the diagnosis of an unclassified psychotic reaction. Since the patient had been receiving reserpine and Rauwolfia compounds, the possibility of a toxic drug psychosis was considered. Following the withdrawal of medicaments a marked clearing of the mental status was noticed. At the present time the only mental residuals are those that can be attributed to a chronic brain syndrome of presumably arteriosclerotic origin. As observed in the first case, this patient had a toxic drug reaction that accentuated a premorbid personality pattern. Since patients having a chronic brain syndrome usually show mental clouding and confusion, it is interesting to observe that in this patient the drug toxicity caused such an accentuation of the premorbid personality pattern that a classic psychosis, manifested by terrifying hallucinations and delusions, ensued.

COMMENT

With any new drug, the question of mechanism or locus of action is most important from the standpoint of its rational therapeutic application. The slowness of action of the drugs Rauwolfia and reserpine suggests that they work through some hormonal or other intermediate mechanism. One of the hormonal routes currently suggested is the adrenal cortex. Gaunt[2] and Winsor[3] feel that the adrenal stimulation is of a nonspecific nature, inasmuch as human subjects receiving reserpine respond normally to corticotropin. Unanswered is the question whether the tranquilizing action of the drug will depress the endogenous mechanism discharging corticotropin in psychogenic stress.[2]

The available evidence suggests that Rauwolfia compounds and reserpine exhibit neither peripheral adrenolytic nor peripheral parasympathomimetic activity. Bein[4] has ruled out the blockade of transmission in the autonomic ganglia because such activity, as might be anticipated, would be reflected in depression of both sympathetic and parasympathetic function. Since the electroencephalogram of an animal markedly quieted with reserpine showed a normal pattern in contrast to the sleep pattern shown with barbiturates,[5] it has been assumed that the alteration of autonomic balance might be within an area of the central nervous system. The hypothalamus, where the autonomic nervous functions are integrated, may be responsible for the observed effects of reserpine.

According to Hess,[6] sleep is a parasympathetic function that is brought about by a suspension of the activity of the sympathetic center in the hypothalamus. He, moreover, has produced sleep by electrical stimulation of the anterior hypothalamic region in the vicinity of the parasympathetic center. Since, besides sedation, Rauwolfia compounds and reserpine cause symptoms suggesting parasympathetic dominance, such as bradycardia, miosis, and increased secretory and motor activity of the gastrointestinal tract, it appears logical to suggest that this might be accomplished by a partial suspension of the activity of the sympathetic center in the hypothalamus.

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[2] Gaunt, R., and others: Endocrine Aspects of the Pharmacology of Reserpine, Ann. New York Acad. Sc. **59**: 22-35, 1954.

[3] Winsor, T.: Human Pharmacology of Reserpine, Ann. New York Acad. Sc. **59**: 61-81, 1954.

[4] Bein, H. J.: Pharmacology of Reserpine, a New Alkaloid from Rauwolfia Serpentina Benth., Experientia **9**: 107-110, 1953.

[5] Plummer, A. J., and others: Pharmacology of Rauwolfia Alkaloids Including Reserpine, Ann. New York Acad. Sc. **59**: 8-21, 1954.

[6] Hess, W. R.: Vegetative Funktionen und Zwischenhirn., Helvet. physiol. et pharmacol. acta, supp. 4, 1947.

Other than blood pressure reduction, according to Moyer,[7] these are the effects, in descending order of frequency, that most often follow reserpine administration: bradycardia in 71% of cases, nasal congestion in 65%, increased appetite in 60%, sedation in 47%, fatigue and weakness in 44%, sense of well-being in 35%, dizziness in 21%, increased bowel movements in 3%, and dreams in 2%. Wilkins [8] has observed that some men complain about a decrease in libido, while two men, one with mild alcoholism, developed definite and painful gynecomastia. Although there is no evidence of tolerance to the dosage, the effects of the medicament continue for two to six weeks following the cessation of therapy. Because they are remarkably well tolerated over a prolonged period of time and generally free from toxic and very severe side-effects, Rauwolfia compounds or reserpine are in others as well as our opinion not only the first agents to try when initiating medical treatment for hypertension but also the last ones to omit from such a regimen.

If one reads the current lay press, he will easily gather the impression that "Rauwolfia is good psychotherapy in pill form." Kline,[9] in fact, feels that Rauwolfia compounds can reduce anxiety and obsessive drives and will overcome excessive inhibitions and reticence. As the usage of the drug becomes more widespread, the psychotherapeutic potentialities of Rauwolfia appear to have some definite limitations. An interesting reaction, which occurs infrequently, is the refusal of certain persons to submit to the tranquilizing effect.[10] Instead of relaxing and accepting a calm tranquil state, they become most uncomfortable, perhaps because the sensation is foreign to their usual nature. The occurrence of mental depression as previously described by Wilkins,[8] Dustan,[11] and Freis,[1] and now a psychotic reaction as here presented, suggests that some caution should be used in the use of Rauwolfia compounds. This includes the normotensive as well as the hypertensive patient.

Almost as perplexing as the proper patient selection is the dilemma of whether to continue the Rauwolfia or reserpine medication once the patient develops a mental reaction. In some it may be that a period of mental turbulence is necessary before the emotional effectiveness of the drug can be achieved. Barsa and Kline [12] in their study of 150 chronically disturbed psychotic patients given large doses of reserpine distinguished three stages in the course of treatment: the sedative period, the turbulent period, and the integrative period. If the patient could successfully pass through the turbulent phase, with its increased delusions and hallucinations, the integrative phase would be reached. As yet, however, it is doubtful in a nonpsychotic patient whether one should continue the medication in the turbulent phase in order to attain the integrative phase. One must always consider the possibility that a lasting mental derangement might be precipitated by perpetuating the turbulent state in a person with limited ego strength.[13]

To differentiate a toxic from a functional psychosis is often a most difficult task. Bleuler,[14] however, feels that true autism in a toxic psychosis is rare, since there is no essential dissolution of concepts and no splitting of the personality. There is frequently in the toxic psychosis a "mental clouding" involving some degree of disorientation, which ranges from fluctuations in attention, comprehension, and memory to confusion and delirium. A high incidence of perceptual distortions involving visual and auditory illusions and hallucinations is noted.[15] In the personality sphere, the form and content of the deviation are independent of the causal agent [16]; the changes represent an accentuation of the premorbid personality pattern.[17]

In use of Rauwolfia alkaloids, caution and close observation are particularly suggested for individuals who appear to be maintaining a marginal emotional adjustment by virtue of previous brain damage or a functional psychiatric disorder. In contrast to the normal individual who can recognize and adjust to the exogenous nature of the disturbance, the "borderline" individual has difficulty sensing whether his reaction is of toxic or endopsychic origin. Utilizing a conditioned response, he draws upon the habitual personality defenses to cope with the added stress. Lacking, as he usually does, sufficient personality resources to cope with the added stress, the result is further ego weakening and disintegration, with a subsequent eruption into consciousness of psychopathology. There appears to be no relationship between the onset of emotional symptoms and the initiation of therapy. Although a lessening of the dosage might be helpful, associated personality disturbances are not necessarily related to the degree of drug intoxication; they are "released" by the intoxication and superimposed upon it. Finally, restraint is advised when the

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7. Moyer, J. H.: Cardiovascular and Renal Hemodynamic Response to Reserpine (Serpasil), and Clinical Results of Using This Agent for the Treatment of Hypertension, Ann. New York Acad. Sc. **59**: 82-94, 1954.

8. Wilkins, R. W.: Clinical Usage of Rauwolfia Alkaloids, Including Reserpine (Serpasil), Ann. New York Acad. Sc. **59**: 36-44, 1954.

9. Kline, N. S.: Use of Rauwolfia Serpentina Benth. in Neuropsychiatric Conditions, Ann. New York Acad. Sc. **59**: 107-132, 1954.

10. Tranquilizing Agents, editorial, New England J. Med. **252**: 74-75, 1955.

11. Dustan, H. P.; Taylor, R. D.; Corcoran, A. C., and Page, I. H.: Clinical Experience with Reserpine (Serpasil): A Controlled Study, Ann. New York Acad. Sc. **59**: 136-140, 1954.

12. Barsa, J. A., and Kline, N. S.: Use of Reserpine in Disturbed Psychotic Patients, Am. J. Psychiat., to be published.

13. Hartwell, S. W.: Practical Psychiatry and Mental Hygiene, New York, McGraw-Hill Book Company, Inc., 1947, p. 160.

14. Bleuler, E.: Autistic Thinking, In Organization and Pathology of Thought: Selected Sources, Rapaport, D., editor and translator, Austen Riggs Foundation Monograph 1, New York, Columbia University Press, 1951, p. 414.

15. Hoch, P. H.; Pennes, H. H., and Cattell, J. P.: Psychoses Produced by Administration of Drugs, A. Res. Nerv. & Ment. Dis., Proc. **32**: 287, 1953.

16. Wolff, H. G., and Curran, D.: Nature of Delirium and Allied States: Dysergastic Reaction, Arch. Neurol. & Psychiat. **33**: 1175-1215, 1935.

17. Kraines, S. H.: The Therapy of the Neuroses and Psychoses: A Socio-Psycho-Biologic Analysis and Resynthesis, ed. 3, Philadelphia, Lea & Febiger, 1948, p. 368.

compounds are administered to otherwise normal persons who function under unusual stress with only a modicum of personality control.

SUMMARY

Although Rauwolfia compounds and reserpine (Serpasil) generally exercise a tranquilizing as well as hypotensive effect, they can be responsible for severe mental disturbances. Within a period of three months we have seen four patients treated for hypertension, and with disturbances secondary to Rauwolfia and reserpine therapy, three of whom were suffering from mental depression and one of whom had a psychotic reaction. These reactions tend to occur in the "borderline" individual who has difficulty maintaining a marginal emotional adjustment by virtue of previous brain damage or a functional psychiatric disorder. Despite the disturbances described, we feel that Rauwolfia compounds and reserpine should be the keystone of treatment of hypertension. However, caution and close observation should accompany the drug therapy in all patients. In addition to the hypertension, one should consider an individual's inherent personality pattern, his current ego strength, and the environmental pressures to which he is subject.

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TREATMENT OF DELIRIUM TREMENS WITH RESERPINE (SERPASIL)

A PRELIMINARY REPORT

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The problem of the treatment of the acutely alcoholic patient has been the topic of countless papers in the past few years.[1] However, despite the many writings on the subject of treatment of postalcoholic withdrawal symptoms, management of these symptoms still revolves around intravenously given fluids for hydration, high doses of vitamins, and large doses of paraldehyde to control the extreme excitation and acute hallucinatory episodes these patients exhibit. Anyone familiar with this mode of therapy can attest to the fact that it is far from being satisfactory. For adequate control of these extremely agitated patients, they must be given massive doses of paraldehyde to the point where they are literally semicomatose. This then increases tremendously the amount of nursing care required per patient, for then intravenous administration of fluids, frequent turning, bathing, catheterization, and changing of linens are required. In addition, these patients are oftener than not in a very debilitated state and the necessity of keeping them continually semicomatose greatly increases the incidence of pneumonia and urinary infections. Furthermore, the odor of paraldehyde that pervades the wards and corridors is very distressing to the remainder of the patients and ward personnel. These alcoholic patients very quickly develop a tolerance to paraldehyde, so that even massive doses are ineffective or only partially effective in controlling their agitation. Finally, with this treatment regimen, it sometimes takes as long as five or six days before the patient is free of hallucinations, agitation, and tremors.

While studying use of reserpine (Serpasil) as a tranquilizer in therapy of various neurological disorders, especially acute head injuries, we were impressed by its effectiveness in controlling acute hallucinatory episodes in several patients. It therefore occurred to us that it might be helpful in the management of the patient with delirium tremens. Our results with reserpine therapy have been so very gratifying that it was thought worthwhile to summarize them in this preliminary report in order to obtain a more widespread trial of the drug in the treatment of delirium tremens.

CLINICAL MATERIAL

A total of 24 patients with delirium tremens has been treated since the study was begun on Oct. 5, 1954. These patients were carefully selected so that only those with severe delirium tremens manifesting extreme agitation and excitement with marked hallucinations were placed under treatment. There were 18 males and 6 females in the series, the average age of the former being 47.2 years and of the latter 45.6 years. The ages ranged from 31 to 65 in the males and 37 to 64 in the females. The majority were patients with chronic alcoholism of the type seen in a charity hospital, who were suffering from malnutrition and dehydration and who had had several previous admissions for alcoholism or delirium tremens. Because of their marked excitement and intense fear of such things as "snakes," "little men," "bugs," and "two-headed elephants," they all had to be kept in firm restraints. In addition, most of these patients were extremely noisy, shouting at imaginary persons and talking abusively to the ward personnel.

It was difficult to obtain suitable controls for a series such as this. However, from observations on other patients with marked delirium tremens who were given the usual treatment with paraldehyde and from some of the observations made on the present series of patients, a good basis of comparison could be obtained as to the efficacy of the treatment. During the course of this

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This study was supported by a grant from Ciba Pharmaceutical Products, Inc., Summit, N. J., who supplied the reserpine (Serpasil) used.

[1] Bell, R. G.: The Treatment of Alcohol Withdrawal Symptoms, Canad. M. A. J. **64**: 370 (June) 1951. Thimann, J., and Peltason, P.: Insulin Subshock as a Detoxicant in Acute Alcoholic Intoxication, Quart. J. Stud. Alcohol **7**: 506 (March) 1947. Smith, H. W.; McBroom, G. L., and Bell, R. G.: The Treatment of Acutely Intoxicated Alcoholics, Canad. M. A. J. **63**: 250 (Sept.) 1950. Tillim, S. J.: Acute Alcoholism Treated with Insulin, Am. J. Psychiat. **101**: 396 (Nov.) 1944. Seitz, P. F. D.: The Sensorium in Delirium Tremens and Alcoholic Hallucinosis, ibid. **108**: 145 (Aug.) 1951.

study blood pressure readings were taken before the reserpine was administered and during treatment. Observations were also made as to the time of disappearance of hallucinations and confusion, as well as the relief of the tremors or "shakes" with which many of these patients were afflicted.

TREATMENT AND DOSAGE

Several papers have appeared in the recent literature detailing the use of reserpine in hypertension.[2] These have adequately covered the question of dosage for this particular disease. However, we were dealing with an entirely different problem in this instance—treatment of acute illness, the termination of which we wanted to effect in a matter of hours. Obviously, this required an entirely different dosage schedule and method of administration. The use of reserpine for other than the treatment of hypertension is so new, however, that only two papers had appeared on the subject before our study.[3] While these studies were of some help in giving us an idea of the relative limits of safety of the drug, they were of no avail in helping us to determine the optimum dosage and dosage schedules to be used for the more acute illness that we were treating. It was like groping about in the dark to ascertain the maximum amount of parenterally administered reserpine that could be utilized with safety in order to alleviate as rapidly as possible the marked hallucinations with which these patients were afflicted. Moreover, reserpine is known to cause an increase in gastric secretion and, because of the high incidence of alcoholic gastritis in these patients, we began the study with some fear and trepidation. It should, therefore, be kept in mind that the results we are reporting are not necessarily the optimum that can be expected from the use of this drug. Work is continuing to determine further the best dosage schedules. In our series reserpine was administered parenterally in all cases because (1) it was essential to have the drug act as rapidly as possible, and (2) many of the patients could not be induced to take a medicament orally.

From previous studies in the treatment of hypertension, we know that it requires at least one to two weeks for any effects to be seen from oral medication. This obviously was not suitable for our purpose. Of the total patients in the series, 13 were treated by the intravenous route, 8 by the intramuscular, and 3 by a combination of the intravenous and intramuscular routes. We have given as much as 5 mg. intravenously, injected over a period of one minute, to these alcoholic addicts without ever noticing any ill-effects on the patient. However, because we have had several instances of annoying side-effects (hypotension, nausea, and vomiting) after using 5 mg. doses in another series of patients in whom the drug was used for reasons other than delirium tremens, we have preferred to give the drug in two equal doses of 2.5 mg. each about three hours apart. This has usually been sufficient to cause the patient to be free of all hallucinations in 24 hours. In many instances this relief was obtained within 18 hours. The shortest recovery period that we have experienced was nine hours in three of our patients. However, in several cases, while the patient was much more calm and manageable in 24 hours, it required a repeated dose of 2.5 mg. to 5 mg. intramuscularly in order to free the patient entirely of his hallucinations.

It appears from our short series that intravenous administration of the drug produces a more rapid effect than the intramuscular route. However, because excellent results could be seen with either route in 24 hours, it seems preferable to use intramuscular administration as much as possible because of the greater convenience and less potential hazard involved. Of course, if it were desired to get the patient under control as rapidly as possible, the intravenous route is the preferable one. Again it should be emphasized that we have seen no untoward effects with either method of administration in this series of patients.

The routine we followed was to place all of the patients on the previously used regimen for the treatment of acute alcoholism, including intravenous administration of fluids and high doses of vitamins, except for the omission of the high doses of paraldehyde. The patients were then given a dose of reserpine intravenously or intramuscularly. The medicament was first used intravenously in 5 mg. doses. Later in the series several patients were given 2.5 mg. intravenously and 2.5 mg. intramuscularly at the same time. This was later changed to 2.5 mg. followed in three to four hours by another dose of 2.5 mg. intravenously or intramuscularly if the patients were still agitated. Usually the patients would require the second dose of 2.5 mg. Ordinarily these patients would begin to quiet down in six to eight hours. However, in one instance the patient remained so agitated that a third injection of 2.5 mg. was given four hours after the second dose. Because of the delay in the onset of action of reserpine, many patients were also given a dose of paraldehyde (10 cc.) initially in order to help keep them controlled for the first few hours.

RESULTS

All but three of the patients studied were relieved of their symptoms in 24 hours or less. In these three patients the state of agitation was markedly improved, though they were still slightly confused and had mild hallucinations that apparently did not give them much concern. They were each given another dose of 5 mg. of reserpine intramuscularly and within 12 hours were entirely free of symptoms. It is entirely possible that had these three patients been given a third dose of 2.5 mg. of reserpine during the first 24 hours their symptoms would have been alleviated much sooner.

In the entire series, the 16 patients who were given the dose intravenously or by combined intravenous and intramuscular administration were free of the symptoms in an average of 18 hours while the 8 who had received the drug intramuscularly were entirely free of symptoms in an average of 28 hours. The tranquilizing effects of the drug usually became apparent in six to eight hours. Five were entirely free of symptoms in 12 hours, and nine more were entirely relieved in 18 hours. The longest period required for a patient to be entirely symptom-free was 48 hours, which occurred in two instances. However, as has already been stated, these two patients were markedly relieved of their excitement and tremors within 24 hours, the only residuals being a continuation of their visual hallucinations in a much milder form for another 24 hours. One man, for instance, continued to see "baldheaded men with sheepskin coats" in the room and another noted "elephants with lots of heads," but these were not as numerous and not as frightening as those seen the day previously.

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[2] (*a*) Moyer, J. H.: Cardiovascular and Renal Hemodynamic Response to Reserpine (Serpasil), and Clinical Results of Using This Agent for the Treatment of Hypertension, Ann. New York Acad. Sc. **59**: 82 (April 30) 1954. (*b*) Wilkins, R. W., and others: Reserpine in the Treatment of Hypertension: A Note on the Relative Dosage and Effects, New England J. Med. **250**: 477 (March 18) 1954. (*c*) Wilkins, R. W.: Clinical Usage of Rauwolfia Alkaloids, Including Reserpine (Serpasil), Ann. New York Acad. Sc. **59**: 36 (April 30) 1954. (*d*) Winsor, T.: Human Pharmacology of Reserpine, ibid. **59**: 61 (April 30) 1954.

[3] Noce, R. H.; Williams, D. B., and Rappaport, W.: Reserpine (Serpasil) in the Management of the Mentally Ill and Mentally Retarded: Preliminary Report, J.A.M.A. **156**: 821 (Oct. 30) 1954. Kline, N. S.: Use of Rauwolfia Serpentina Benth. in Neuropsychiatric Conditions, Ann. New York Acad. Sc. **59**: 107 (April 30) 1954.

All patients were fully awake or only slightly drowsy the following day. Of the few who were drowsy, those who tended to fall asleep were easily awakened and responded to questioning readily and coherently. It should be kept in mind that these patients had received a relatively large dosage of reserpine compared to the dosage usually employed in chronic diseases like hypertension, which may account for the increased drowsiness. Several of the patients of this series had to be given an initial dose of paraldehyde (10 cc.) in order to control their marked agitation until the reserpine could take effect. While this medicament may have contributed to the drowsiness of the patients, it is extremely doubtful that it played any significant role in controlling their hallucinations. Anyone familiar with the care of alcoholic addicts is cognizant of the great tolerance these patients have to paraldehyde. Many of these patients had had several previous admissions to the hospital for alcoholism and had received paraldehyde on many other occasions. In fact, some of the men spontaneously requested extra doses of paraldehyde since the ordinary doses were without effect, so we can thus discount any effects due to the small dose of paraldehyde as being negligible. In our series two cases aptly illustrate this point as well as the comparative effectiveness of reserpine and of paraldehyde.

REPORT OF CASES

Case 1.—The patient, a 40-year-old Caucasian male, had had many previous admissions to the Los Angeles County General Hospital for alcoholism and delirium tremens. He was first seen by us on Nov. 16, 1954, at which time he was having very marked delirium tremens. Despite restraints on all four extremities and a sheet about his chest, he was half sitting in bed shouting at the "little men and Nazis" who were trying to put him in a concentration camp. He was given 5 mg. of reserpine intravenously in one injection because of his extreme agitation and within 18 hours was entirely free of his hallucinations, well oriented though somewhat drowsy, and ambulating about the ward. The patient was discharged the following day perfectly alert and oriented.

He was readmitted late at night on Jan. 5, 1955, with delirium tremens, but we were not informed of this until the following afternoon. In the meantime he had received a total of 60 cc. of paraldehyde in three doses within a 10-hour period; when we first saw him 4 hours after the last dose, he was almost unresponsive. However, when aroused with great effort, he was still seeing fierce tigers with "lots of heads." He was given 5 mg. of reserpine intramuscularly in one dose. We did not wish to give the drug intravenously because of the fear of an adverse reaction due to the tremendous quantity of paraldehyde that the patient had received. Twenty-four hours later he was awake and talking and taking feedings orally. He was still seeing a few animals with many heads, but they were much less numerous and did not cause as much anxiety and agitation as previously. After another dose of 5 mg. of reserpine intramuscularly, the patient became free of hallucinations the following day.

Thus, this patient was made symptom-free within 18 hours by the use of reserpine whereas he was not relieved of his symptoms after the use of massive doses of paraldehyde.

Case 2.—A 59-year-old Caucasian male was admitted on Nov. 11, 1954, to the Los Angeles County General Hospital. He had been in an auto accident and was admitted with multiple fractures of his right extremities. He had chronic alcoholism, with several previous admissions for acute alcoholism and delirium tremens. Shortly after the present admission, he began to note "little men" on the ceiling and requested paraldehyde, as he knew from previous experience that he was going into delirium tremens. He was given reserpine, 2.5 mg. intravenously and 2.5 mg. intramuscularly at the same time. Within nine hours he was entirely free of his hallucinations. The patient was given no further sedation or reserpine and continued to be free of hallucinations for 48 hours. However, during the night of Nov. 13, 1954, he again became very restless and hallucinatory and was given paraldehyde, since there was no reserpine for parenteral administration immediately available on the ward. He was continued on the paraldehyde therapy, but it was not until 36 hours later that he was free of his hallucinations.

This case provides a very good example of the comparative effectiveness of reserpine and paraldehyde—the former requiring 9 hours to the latter's 36 hours for the relief of symptoms. Interestingly enough, it also provides us with an idea as to the duration of action of the drug (about 48 hours), which agrees very closely to the experimental findings in dogs (36 to 48 hours) as reported by Plummer and co-workers.[4]

In treating an illness such as delirium tremens it is understandably very difficult to find an adequate and comparable control series. However, in our experience and that of others of the staff of the Los Angeles County General Hospital, it may take as long as four to six days for a patient with severe delirium tremens, such as we included in our series, to become symptom-free. We have seen several examples of these patients who have been treated for three to four days on the usual regime (with paraldehyde used for sedation) with only partial relief of symptoms. Albert and associates,[5] reporting a series of cases of alcoholism treated with chlorpromazine, stated that it required as long as four days of therapy to overcome the excitatory state of delirium tremens. Comparison of these experiences with our results makes us feel that the use of reserpine in delirium tremens holds great promise.

SIDE-EFFECTS

The question naturally arises as to the comparative safety of this drug and the incidence of annoying or dangerous side-effects. Several previous papers on the long-term use of the drug in hypertension have reported such effects as bradycardia, nasal congestion, drowsiness, nausea, and dizziness.[6] It also has been found that reserpine may increase gastric secretion. The latter finding, especially in a patient with acute alcoholic gastritis, would be very disconcerting. However, except for some drowsiness and in one instance bradycardia (pulse of 60 per minute), we have had no difficulty with any of the reported side-effects in our study. Incidentally, the patient with the slow pulse apparently had no ill-effects. Apparently, the usual treatment that these patients receive for gastritis on admission is sufficient to overcome or allay any of the effects of increased gastric secretion due to the drug.

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[4] Plummer, A. J., and others: Pharmacology of Rauwolfia Alkaloids, Including Reserpine, Ann. New York Acad. Sc. **59**: 8 (April 30) 1954.

[5] Albert, S. N. and others: The Use of Chlorpromazine in the Treatment of Acute Alcoholism, M. Ann. District of Columbia **23**: 245 (May) 1954.

[6] Dustan, H. P.; Taylor, R. D.; Corcoran, A. C., and Page, I. H.: *Clinical Experience with Reserpine (Serpasil): A Controlled Study*, Ann. New York Acad. Sc. **59**: 136 (April 30) 1954. Wilkins.[2c]

Of course, it must be realized that the original use for reserpine, viz. as a hypotensive agent, would be considered a side-effect in the present indication. However, despite the comparatively large doses that these patients received, the average fall in blood pressure was 15 mm. Hg systolic and 10 mm. Hg diastolic. As a matter of fact, two of the patients actually had rises in systolic blood pressure of 18 and 10 mm. Hg. It should be pointed out, however, that all of these patients in the group, with but one exception, were normotensive. Moreover, these patients were all confined to bed for the first 24 hours. It has been our experience with other series of patients treated with reserpine for various neuropsychiatric disorders that normotensive individuals do not ordinarily get the same hypotensive effects from the drug as do hypertensive patients. Furthermore, the effect is usually that of an orthostatic hypotension, which of course would not be apparent in these necessarily bedfast patients. However, when these patients became ambulatory 18 to 24 hours later, no ill-effects of any kind were noted.

We feel that the drug should be used with caution in patients with heart disease or previous cerebral vascular accidents and in those with hypertension. However, these are by no means to be considered as contraindications. We have had occasion to use the drug in a patient with congestive heart failure who was having severe delirium tremens. This patient was hallucinating actively, seeing numerous "black cats" and "lots of men" coming after him. He was given 5 mg. of reserpine intramuscularly and in 18 hours was free of his hallucinations. Paradoxically his blood pressure before the reserpine was 104/60 and 24 hours later was 122/68. His pulse rate fell from 90 to 76 during this period.

However, in one case of another series in which this drug was used we have seen a sudden marked drop in blood pressure after the intravenous injection of 5 mg. of reserpine. This patient was hypertensive, his blood pressure being 180/120. Within three hours after the injection he became comatose and his blood pressure was barely obtainable. Fortunately, the pressure was brought back to normal levels in a few minutes with the use of levarterenol (Levophed) bitartrate intravenously, and the patient reacted and was talking again in minutes. This case should not be taken to imply that the drug is contraindicated in hypertensive individuals. Nor does it mean that a 5 mg. dose intravenously should not be used if the need arises. As a matter of fact we know of several cases in which doses as high as 20 mg. intravenously were used (in toxemias of pregnancy) without ill-effects.[7] This case, however, does serve to point out what others as well as we have experienced, namely, that a small percentage of individuals, especially those with hypertension may react adversely to a medicament used intravenously in high doses. It therefore should be used with caution, especially in patients with a previous history of cardiovascular disease.

From the little experience that we have had, there is apparently no correlation between the hypotensive and tranquilizing effects of the drug. In another series of cases we have seen patients who have had a marked fall in blood pressure without any apparent effect on their mental or emotional status, and conversely we have seen gratifying effects on emotional disorders without any deleterious effect on the blood pressure or pulse. Moreover, the effects on the blood pressure are usually apparent within two hours after a dose intravenously, whereas the emotional effects are not apparent for at least six hours. We have had no difficulty with symptoms of nasal congestion or epistaxis as the result of the use of this drug. We have also had no difficulty with nausea or vomiting in these patients, apparently because of the fact that they were getting treatment (antacids and anticholinergic drugs) for their alcoholic gastritis at the time that they were given the reserpine.

COMMENT

From our experience with reserpine, we have gained the impression that its pharmacological action is more like that of digitalis. It requires a certain blood level before it can be effective. Its action is not immediate like that of the barbiturates given intravenously but is noted only after several hours. Moreover the duration of action is prolonged over a period of 36 to 48 hours. Furthermore, as with digitalis, the dosage has to be individualized, as different patients will get varying reactions from the same dose.

From our experience thus far, it appears that the safest and most effective method of administration is in a dose of 2.5 mg. intramuscularly or intravenously to be followed in three hours with another dose of 2.5 mg. if necessary. This dose may again be repeated in four hours if the patient is still markedly agitated. However, if the patient becomes drowsy, it is best not to give any further medication until the following day. At that time, if the patient is still having hallucinations, another dose of 2.5 mg. would probably be sufficient to control the symptoms. The medicament does not have to be given by intravenous drip, but, by giving it in divided doses as suggested above, there is less danger of an adverse reaction ensuing. Again, it should be emphasized that the dosage must be individualized. Further, until more is known about the drug it is best not to push it too vigorously unless one is faced with a very acute situation. Under ordinary circumstances, it is best to give the medicament in the suggested dosage and to wait a few hours longer for the desired results than to have to be faced with treating an adverse reaction to the drug.

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[7] Assali, N.: Personal communication to the authors.

It would seem to be worthwhile to continue the patient on a daily maintenance dose of 1 to 2 mg. of reserpine orally over a prolonged period of time in order to alleviate some of the anxiety that causes these patients to resume drinking soon after discharge from the hospital. We have been unable to put this program into operation at this hospital, however, because of the lack of adequate personnel and facilities. A prolonged clinical follow-up on this use of reserpine in a facility geared to this type of work might prove to be very valuable.

SUMMARY

Twenty-three patients were treated with reserpine (Serpasil) in an attempt to control the symptoms of delirium tremens. The drug was given parenterally in relatively large doses ranging from 2.5 mg. to 5 mg. in one injection. The patients were free of their symptoms of acute hallucinations in an average of 18 hours. Most of the patients were free of their symptoms within 24 hours. However, the shortest period of time noted was 9 hours (in two patients) and the longest was 48 hours (in two patients).

Despite the relatively large doses utilized, there were no ill-effects noted in this series. Hypertensive cardiovascular disease per se is not a contraindication to the use of the drug, although the drug should be used with great caution in these instances. Because of the great variation in reaction to this drug, the dose should be individualized. However, we have found that an initial dose of 2.5 mg. to be followed in three hours by another dose of 2.5 mg., if necessary, is fairly safe for all patients. The use of this drug has greatly shortened the time necessary to free these patients of their postalcoholic withdrawal symptoms. Moreover, they are a much easier group to care for from the point of view of nursing. We believe that the use of reserpine has shown very gratifying results in the treatment of delirium tremens and warrants further trial.

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DANGERS IN COMBINING RESERPINE (SERPASIL) WITH ELECTROCONVULSIVE THERAPY

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Within the past two years reserpine has enjoyed an increasing and ever-expanding popularity in therapeutic usage in this country, particularly because of its rather specific hypotensive effect, and in recent months there has been a growing enthusiasm in the use of reserpine for the treatment of many psychiatric illnesses. Noce and others [1] were enthusiastic about the value of this drug in treatment of agitated and overactive states. They reported dramatic responses in patients who had been unmanageable and who had not responded previously to certain of the so-called physical therapys, particularly electroshock treatment. Originally more conservative in reported results, Kline [2] has recently also described most encouraging effects with the use of reserpine.

Earlier studies [3] on the pharmacology of this drug emphasize that it has very low toxicity. Monkeys have tolerated orally given doses up to 3 mg. per kilogram of body weight daily for six months and single intravenously given doses up to 4 mg. per kilogram without significant ill-effects. It has also been reported that a 20-month-old child accidentally ingested about 200 mg. of crystalline reserpine without critical ill-effect.

RESULTS

In our series of cases reserpine (Serpasil), both parenterally and by mouth, has proved a very helpful adjunct in the treatment of a number of psychiatric illnesses. It is the purpose of this report, however, to describe certain dangerous side-effects we have observed when this drug has been combined with electroconvulsive therapy, even though we have given relatively lower dosage than that reported by others in similar cases. We have given no more than 5 mg. a day parenterally to any one patient, with orally given doses varying between 0.25 mg. four times a day and 1 mg. twice a day. Until quite recently the side-effects in our cases corresponded with those already reported, namely, nasal stuffiness, lassitude, weakness, nightmares, vertigo, and diarrhea. Only on rare occasions were they considered sufficient reason for discontinuing medication. In the three months before we prepared this report, however, we witnessed several severe reactions in the use of reserpine combined with electroconvulsive treatment. One patient died; in three other patients the vital signs were imperceptible for several minutes, the patients remain-

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From the Department of Psychiatry and Neurology, Medical College of Virginia.

The reserpine (Serpasil) used in this study was supplied by Ciba Pharmaceutical Products, Inc., Summit, N. J.

Two of the cases were reported with the assistance of Dr. Milton D. Friedenberg. Drs. George W. Thoma, of the Virginia State Medical Examiner's Office, R. F. Gayle III, Rafael Delgado, and F. H. Badaro also assisted in assembling the material.

[1] Noce, R. H.; Williams, D. B., and Rapaport, W.: Reserpine (Serpasil) in the Management of the Mentally Ill and Mentally Retarded: Preliminary Report, J. A. M. A. **156**:821 (Oct. 30) 1954.

[2] (*a*) Kline, N. S.: Use of Rauwolfia Serpentina Benth. in Neuropsychiatric Conditions, Ann. New York Acad. Sc. **59**:107, 1954; (*b*) Clinical Application of Reserpine, read before the American Psychiatric Association in the Section on Medical Science, American Association for the Advancement of Science, Berkeley, Calif., Dec. 30, 1954.

[3] (*a*) Plummer, A. J., and others: Pharmacology of Rauwolfia Alkaloids, Including Reserpine. Ann. New York Acad. Sc. **59**:8, 1954. (*b*) Rein, C. R., and Goodman, J. J.: Efficacy of Reserpine (Serpasil) in Dermatological Therapy, A. M. A. Arch. Dermat. & Syph. **70**:713 (Dec.) 1954. (*c*) Wilkins, R. W.: Clinical Usage of Rauwolfia Alkaloids, Including Reserpine (Serpasil), Ann. New York Acad. Sc. **59**:36, 1954. (*d*) Winsor, T.: Human Pharmacology of Reserpine, ibid. **59**:61, 1954.

ing extremely confused, lethargic, and weak for the following six to eight hours. Two other patients suffered falls in blood pressure to shock levels, which persisted for several hours after the electroconvulsive treatment.

These reactions occurred in a series of 63 patients given both reserpine and electroconvulsive treatments during the past year. A subsequent review of these cases has not revealed any predictable contraindication for this combination either in objective records of the patients' physical states or in their reported subjective sensations. There was also no correlation in terms of the drug dosage. Other patients in the total series tolerated a combination of reserpine, 2 mg. by mouth and 5 mg. intramuscularly daily, plus electroconvulsive treatments three times a week for periods as long as three months without showing any side-effect but mild drowsiness.

Since reserpine has proved effective and increasingly popular in the management of disturbed patients, the possibility of similar occurrences elsewhere is further enhanced. In addition, it has been recently reported [2b] that a period of transient excitement with exacerbation of symptoms is a characteristic stage of treatment with reserpine. This might lead some doctors to start electroconvulsive treatment immediately without stopping reserpine therapy, and we have the very definite clinical impression that such a combination is dangerous.

REPORT OF CASES

Case 1.—A 49-year-old white male was admitted to the hospital because of increased motor activity, pressure of speech, flight of ideas, and other symptoms of manic excitement. It was necessary to keep this patient in seclusion and, in controlling his motor excitement, to use amobarbital (Amytal) sodium intravenously on several occasions. The last dose, 250 mg., was administered 13 hours prior to his terminal episode and had little effect on his excited state. For three days prior to admission this patient was given a total of 1 mg. of reserpine orally each day. Shortly after admission he was given 2.5 mg. of reserpine intramuscularly with no amelioration of symptoms. On the patient's third hospital day, at 11:30 a. m., he was given another injection of 2.5 mg. of reserpine intramuscularly. Four and a half hours later he received an electroconvulsive treatment. The patient failed to breathe after this treatment and had no pulse. He was immediately given the usual respiratory and cardiac stimulants and artificial respiration with oxygen but failed to respond. Postmortem examination revealed cerebral edema, pulmonary edema, very mild cardiac hypertrophy (although there was no evidence of hypertension premorbidly), and mild hyperplasia of the adrenal cortex. It was the opinion of the pathologist that postmortem findings, both gross and microscopic, did not show anatomic cause for this patient's death.

Case 2.—A 45-year-old white female entered the hospital in a state of overactivity and overtalkativeness of about 10 days' duration somewhat similar to that in case 1. Within 24 hours of admission to the hospital, the patient was started on a regimen of 2.5 mg. of reserpine intramuscularly twice a day. After five days of this treatment, the patient's symptoms abated slightly, but it was felt that electroconvulsive treatments should be added. Mindful of the possible effect of reserpine in the previous case, the dosage was reduced in this patient on the day prior to treatment with the last dose given at bedtime. The next morning, 12 hours after this injection, the patient was given an electroconvulsive treatment. The patient's vital signs could not be obtained for several minutes following this. Cardiac and respiratory stimulants and artificial respiration with oxygen were immediately administered and the patient gradually responded, although the pulse and spontaneous respiration were not evident for approximately 15 minutes after the treatment. The patient remained lethargic for the following 12 hours and in addition developed bilateral pitting edema of both lower extremities. Reserpine therapy was discontinued, and the patient was studied exhaustively, both clinically from a physical and neurological standpoint and with comprehensive laboratory studies. These included the usual complete blood cell count, urinalysis, and studies of blood sugar, urea nitrogen, sodium, and potassium levels. Electrocardiographic and chest x-ray examination were also repeated. None of these examinations revealed any abnormalities. After a lapse of four days after the termination of the reserpine therapy, electroconvulsive treatments were resumed. The patient responded promptly after each treatment.

Case 3.—A 52-year-old white female was admitted to the hospital with agitation, depression, and other symptoms characteristic of an involutional psychotic reaction. After her admission studies and a period of several days' observation, the patient was given a course of electroconvulsive therapy. After the ninth treatment, with only slight improvement of symptoms, she was given 2.5 mg. of reserpine intramuscularly twice a day. After only two injections of reserpine, with the last having been given the preceding evening, the patient was given her 10th electroconvulsive treatment. This was followed by a prolonged period of apnea, and her pulse was discernible only intermittently. With institution of the usual heroic stimulants her respiration spontaneously resumed and after about 10 minutes her pulse became full and regular, but she continued to be lethargic with generalized motor weakness for several hours. Intramuscular administration of reserpine was then discontinued, and four days later electroconvulsive treatment was reinstituted. She received eight subsequent treatments, which she tolerated well.

Case 4.—A 29-year-old white female was admitted to the hospital with the diagnosis of schizophrenic reaction, hebephrenic type. On admission the patient was slowed-up, withdrawn, and negativistic, with alternating periods of aggressive and assaultive behavior. One milligram of reserpine was given orally each day. Three days after admission electroconvulsive treatments were started and she was given one a day for three days. After the third treatment there was the same prolonged period of apnea and lack of discernible pulse described in the previous cases. She eventually responded to resuscitative measures but continued to be quite confused and lethargic the remainder of the day.

Case 5.—A patient had been receiving electroconvulsive treatments for some months in addition to being given 1 mg. of reserpine orally each day. After an isolated electroconvulsive treatment, the patient showed a precipitous fall in blood pressure, which persisted for some two hours after treatment at levels of 80/40 mm. Hg. This was accompanied by subjective and objective drowsiness and confusion. The orally given dose of reserpine was reduced by one-half, and two weeks later the patient again received an electroconvulsive treatment with no untoward side-effects.

Case 6.—A 55-year-old female was admitted to the hospital with ideas of reference, auditory hallucinations, religious preoccupation, and periods of agitated depression. The result of physical examination was not remarkable except for a blood pressure of 150/90 mm. Hg and a transient sinus tachycardia with pulse rate of 130. She was given a course of 10 electroconvulsive treatments, and after the seventh treatment she was also given 2.5 mg. of reserpine intramuscularly twice a day; this therapy was continued for 11 days beyond the termination of electroconvulsive treatments. Suddenly on the 12th day the patient became stuporous and pale, sweating profusely. The blood pressure was recorded at 80/40 mm. Hg with a pulse rate of 60. Reserpine therapy was discontinued and the blood pressure gradually returned to previous levels with the symptoms resolving over a period of several hours. Immediate investigation, both during and after this attack, was conducted with complete neurological study and thorough examination by the medical department. This survey failed to find an anatomic or pathological cause for the reaction. This does not necessarily mean that none existed, but it is known that this patient had been receiving 5 mg. of reserpine intramuscularly for the preceding 24 days and for the first 5 days in combination with electroconvulsive treatment.

COMMENT

Attempts to explain the reaction seen in these patients have proved unrewarding. This is further compounded by the fact that studies to determine accurately either the site or mode of action in electroconvulsive treatments have not been convincing. Other investigators have held that, because of the latent period following intravenous injection of reserpine, subsequent effects are due to some unknown product of the further metabolism of the drug. There seems to be agreement that this breakdown product suppresses the sympathetic centers in the hypothalamic area of the brain stem.[4] Experimentally, acute lethal doses in animals caused respiratory failure on a central basis. Reserpine,[3a] however, did not block the pressor response following increased intracranial pressure, which according to Yesinick and Gellhorn, is due to asphyxial stimulation of the vasomotor center. Reserpine, also, has been shown to lower the convulsive threshold in animals, yet in our cases minimal convulsive levels of current were used. In the fatality reported one might question the part played by barbiturates, and yet the final intravenous dose of 250 mg. preceded the intramuscular use of reserpine by 8½ hours and the electroconvulsive treatment by 13 hours. Postmortem examination did not show any reason why the barbiturate would not have been destroyed and excreted in that time. Complete physical and laboratory studies, both before and after the critical treatment, did not reveal a predictable reason for the untoward reactions.

SUMMARY

Severe reactions, including one fatality, have been observed in 6 of a total of 63 patients receiving a combination of reserpine (Serpasil) and electroconvulsive treatment. There was no correlation between either the amount or the route of administration of reserpine and the severity of the reaction. Minimal convulsive dosage was employed with the electroconvulsive apparatus. Complete clinical and laboratory studies of the patients both before and after the critical treatments did not show an adequate or predictable cause for the untoward effects in these particular patients.

ADDENDUM

Since the date of writing of this report, we have found evidence indicating that a minimum of seven days should elapse after reserpine therapy before the initiation of electroconvulsive treatment.

1200 E. Broad St. (19) (Dr. Foster).

4. Schneider, J. A., and Earl, A. E.: Effects of Serpasil on Behavior and Autonomic Regulating Mechanisms, Neurology 4: 657, 1954.

PROGRESS REPORT ON THE POLIOMYELITIS VACCINE PROGRAM

Otis L. Anderson, M.D., Washington, D. C.

Within a relatively short space of time there has been significant progress toward immunizing the most susceptible segment of the nation's population against poliomyelitis. At the inception of the program, with only six manufacturers licensed to produce the vaccine, it was obvious that demand would far exceed the supply. Recognizing this problem, the Secretary of the Department of Health, Education, and Welfare appointed the National Advisory Committee on Poliomyelitis Vaccine to make recommendations regarding the most satisfactory method of equitably distributing the vaccine available. This committee is broadly representative of the medical profession, pharmaceutical and drug industries, parents and teachers groups, and state and local health agencies. Dr. Chester S. Keefer, until recently Special Assistant to the Secretary for Health and Medical Affairs, is chairman of the committee. The secretariat is made up of staff of the Public Health Service. Based on recommendations of the National Advisory Committee, the voluntary system of allocating vaccine among the States was adopted by the Department of Health, Education, and Welfare.

ALLOCATION SYSTEM

Under the voluntary allocation system developed, it is the responsibility of the federal government to arrange for the equitable apportioning of poliomyelitis vaccine among the states—in accordance with each state's population in the currently recommended priority group. In formulating plans for the interstate distribution of vaccine, the Public Health Service consulted extensively with the vaccine manufacturers, representatives of the pharmaceutical and drug industries, and the Association of State and Territorial Health Officers. With the concurrence of these groups, each state is allocated its proportionate share of the vaccine supply periodically cleared and released by the National Institutes of Health.

The equitable intrastate allocation of vaccine is the responsibility of each state. Each governor has appointed an individual—in all cases the state health authority—to be responsible for this program in his state. Each state has also appointed an advisory committee with medical, pharmaceutical, drug, and—in some cases—other appropriate representatives to assist in the program. The state is responsible for determining the percentage of its share of all vaccine released that will be purchased by public agencies, and the percentage to be sold through commercial channels to drugstores and physicians. This decision on the part of each state is passed on to the vaccine manufacturers by the Public Health Service. The manufacturers have all agreed to adhere to state wishes in the sale of vaccine.

During the early months of the program, the National Advisory Committee recommended that its administra-

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Assistant Surgeon General; Chief, Bureau of State Services, Public Health Service, U. S. Department of Health, Education, and Welfare.

tion be restricted to children in the 5-through-9-year age group. On a nationwide basis, this group was at greatest risk. As of Oct. 12, the vaccine supply was approaching fulfillment of the demand for the 5-through-9-year age group. Almost 24 million cubic centimeters of vaccine had been released by the PHS—enough to give two injections to three-fourths of the 16 million children in this age category. Virtually all states had recommended to the service that the priority group be enlarged so that vaccinations might be extended to additional ages. This would expedite prompt use of the vaccine before its six-month expiration date.

In view of these facts, the National Advisory Committee recommended to the secretary that the priority age group be broadened. Within a range extending from birth through 14 years of age, states may establish priorities most closely related to their own pattern of disease incidence. They may also include pregnant women, whose susceptibility to poliomyelitis is about the same as that of 10-year-olds and twice the rate among other women of comparable age. This flexibility was recommended by the committee because of state variations in the incidence of poliomyelitis among the different age groups.

Because vaccine supplies still remain short of total demand, the secretary has recommended that each state initially extend its priority groups to embrace no more than five additional years of age outside the former 5-through-9-year priority. This is to enable the states to move, in an orderly way, into lower or higher age groups, according to their particular problems of incidence and severity of the disease. Although the federal priorities are not binding upon the states, they have been followed with few exceptions. State priorities are determined by state health departments, assisted by their advisory committees. With the broadening of the priority group, the allocation of vaccine among the states will now be based on their need for vaccine to complete the vaccination of children under 15 years and pregnant women. This involves an addition of approximately 36,500,000 persons to the priority group.

*Paralytic Poliomyelitis Attack Rates in Vaccinated and Unvaccinated Children**

State	Age Group Studied	Period Studied, 1955		Unvaccinated			Vaccinated			Reduction in Rates, %
		From	To	Population	No. of Paralytic Cases	Rate Per 100,000	Population	No. of Paralytic Cases	Rate Per 100,000	
California	6-8	6/15	10/15	431,000	43	10.0	395,000	13	3.3	67
Connecticut	5-9	1/ 1	10/22	89,400	18	20.1	106,120	6	5.7	72
Florida	5-9	4/15	10/21	224,507	11	4.9	149,664	2	1.3	73
Georgia	6-11	4/16	10/23	262,400	20	7.6	174,200	6	3.4	55
Illinois	6-9	4/18	9/15	326,000	34	10.4	357,000	5	1.4	87
Maryland	5-9	4/12	10/ 8	158,000	27	17.1	112,000	4	3.6	79
Minnesota	6-9	5/20	10/28	33,259	10	30.1	112,115	3	2.7	91
New York City	6-7	6/ 1	10/21	87,000	19	21.8	166,000	9	5.4	75
New York State	6-10	5/21	10/21	282,000	59	20.9	448,569	18	4.0	81
North Carolina	5-9	4/12	10/21	232,133	25	10.8	196,466	4	2.0	81
Oregon	7-9	5/22	8/23	46,188	7	15.2	47,852	1	2.1	86
Washington	5-9	5/15	10/14	190,179	40	21.0	69,123	4	5.8	72

* Summary of special studies from 11 states and New York City—preliminary reports received through Nov. 1, 1955. Data obtained from attachment to Poliomyelitis Surveillance Report no. 50, Nov. 10, 1955.

FINANCING

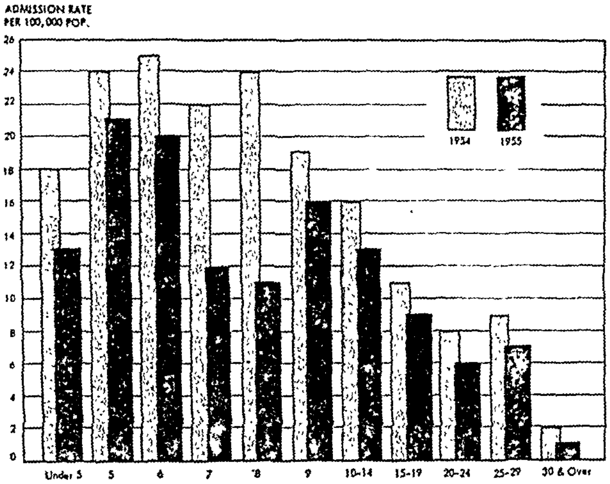
In order that poliomyelitis vaccine might be available to all the population as needed—and considering those who might be financially unable to obtain vaccine in their own behalf—17 states and 2 territories made available to their health departments a total of approximately 6 million dollars for the purchase of vaccine.

The federal government, likewise, has provided assistance. Shortly after licenses were issued to six manufacturers to produce and distribute the vaccine, President Eisenhower promised the American people that he would recommend a program that would assure that no child would be denied poliomyelitis vaccine because of inability to pay for it. Legislation to put into effect the administration's program was introduced in both houses of Congress. Other bills providing for federal sharing of the cost of vaccine and administration of the program were also introduced.

The Poliomyelitis Vaccination Assistance Act of 1955, passed in the closing days of the congressional session, authorizes grants to states for purchase of poliomyelitis vaccine, for planning vaccination programs within the states, and for conducting such programs through public agencies. The act expires Feb. 15, 1956. Congress appropriated 30 million dollars in grants for this program. These funds are available for obligation by states through Feb. 14, 1956. It is too early to predict whether an extension of the act will be requested—or in what form. Of the 30 million dollars appropriated, 25 million dollars was allotted among the states for purchase of vaccine. The allotment formula is based on eligible population (unvaccinated children under 20 years of age and expectant mothers) and per capita income. The remaining 5 million dollars is available for expenses connected with planning and conducting vaccination programs through public agencies, including the purchase of vaccine. No state matching is required for either portion of the allotment. The Public Health Service may furnish vaccine in lieu of cash to a state, if the state so requests. Twenty states have requested that the service purchase vaccine for them in lieu of cash payments.

In addition, congress appropriated $4,500,000 as a *supplement to the General Health Grant of the Public* Health Service. These funds are earmarked and may be used only for planning and operating the intrastate vaccine distribution system and for planning and conducting public vaccination programs. Funds from this appropriation are available through June 30, 1956.

As a condition to receiving payments under the Poliomyelitis Vaccination Assistance Act, state plans must contain assurance that no means test will be imposed for poliomyelitis vaccination services provided through public agencies. This assurance is required for all programs conducted by public agencies regardless of whether the vaccine is purchased with federal funds or with state or local funds. The restriction in the act against use of a means test as a condition of eligibility does not apply to the administration of poliomyelitis vaccine by private physicians or nonprofit organizations when they are not acting as employees or agents of a public agency—even though the vaccine may have been purchased with federal grant funds.



Number of persons with acute poliomyelitis admitted to hospitals per 100,000 population with onset of cases June 26-Sept. 17, 1955, and June 20-Sept. 10, 1954 (based on tabulation of hospital admissions supplied by the National Foundation for Infantile Paralysis).

Because of individual needs and situations, there is considerable variation among the state plans with respect to the division of vaccine between public agency and commercial purchasers. Some states have requested that their entire allotment go to public agencies; some that all go through normal distribution channels to retail druggists and physician; and some that the distribution be split. On a national basis, the vaccine released for sale has been about equally divided between public agencies and commercial purchasers.

AVAILABILITY

The fact that some states are purchasing their entire allotments of vaccine with tax funds does not mean that this vaccine will not be available to physicians for use in their private practices. Most state plans indicate that details for administration of the vaccine are being developed locally through the cooperative efforts of local medical societies and health departments. Some counties and cities will hold public clinics; some will rely chiefly on private physicians; and many will make the vaccine available both in public clinics and to private physicians.

Since April 12 (and including vaccine released subsequent to Oct. 12) a total of almost 25 million cubic centimeters of vaccine have been released by the PHS —13,500,000 for the National Foundation for Infantile Paralysis, 11,000,000 for interstate distribution, and 500,000 released before voluntary controls were put into effect. Over 6,500,000 children have been reached by the foundation-supported program, which provides two injections for children who were in first and second grades in the Spring of 1955. The vaccine needs of this program have now been essentially satisfied.

It is impossible to predict with any certainty the availability of future vaccine supplies. On the basis of current output, however, the Public Health Service expects that if the states concentrate on the next most susceptible groups—within the five additional years recommended —it will be possible to give these groups some protection by the start of the next poliomyelitis season.

The Public Health Service is continuing to receive encouraging reports as to the safety and effectiveness of the vaccine now being released for use. The Poliomyelitis Surveillance Unit of the Public Health Service, with headquarters at the Communicable Disease Center in Atlanta, Ga., is serving as a clearing-house for a nationwide study to determine the effectiveness of poliomyelitis vaccine as used this year and to report the experience of children vaccinated in the field trial. All state and territorial health departments, more than 40 virus laboratories, the National Office of Vital Statistics, the National Foundation for Infantile Paralysis, and others are participating in the study.

RESULTS OF USE

The results of this year's use of poliomyelitis vaccine cannot be stated precisely at the present time. Only partial, preliminary reports on this season's occurrence of poliomyelitis throughout the nation have been received. There is always some lag in reporting, and many weeks are needed to verify diagnoses and to determine the extent of paralysis in reported cases.

Although final conclusions cannot be drawn, the first "returns" are very favorable. The number of reported cases of poliomyelitis, paralytic and nonparalytic, among 7 million vaccinated children throughout the United States is now running 25% to 50% below the incidence expected without vaccination in the same age groups. All states and territories are participating in this part of the study. During the first month or two following injections, about as many cases were reported in vaccinated children as were expected. But after the second month, the frequency was substantially lower. Also, strong evidence of lessened severity became apparent after the second month, when reported cases among vaccinated children became predominantly nonparalytic.

Special studies are being carried out in nearly half of the states to measure the poliomyelitis experience of children 5-10 years of age. Early reports from 12 areas show that paralytic attack rates among vaccinated children are strikingly lower than among unvaccinated children of the same ages. Differences in rates for the several states range from 55% to 91% (table). In epidemic areas, particularly in New England and Wisconsin, the infrequency of paralytic cases among vaccinated children is notable. Especially intensive studies are being conducted in these states. In these high-incidence areas, the immunity of vaccinated children has been put to the severest test. It is expected that these studies in epidemic areas will provide the most definitive evidence regarding the effectiveness of the vaccine this year. The Massachusetts study, in particular, should yield a wealth of significant data. The number of paralytic cases among children vaccinated in the 1954 field trial, with or without "booster" injections this year, is too small for evaluation as yet. The rarity of paralytic cases in this group, however, is outstanding, so far. Thirty-three states are submitting to the Poliomyelitis Surveillance Unit current reports of poliomyelitis cases by single years of age. These figures, when compared with similar figures from 21 states for 1952, show reduction in the incidence of paralytic poliomyelitis among 7- and 8-year-old children. This early evidence is significant because the use of poliomyelitis vaccine has been restricted this year chiefly to these age groups.

A tabulation of routine hospital admissions for acute poliomyelitis by the National Foundation for Infantile Paralysis for 1954 and 1955 gives further support to these early leads (figure). In 1954, between June 20 and Sept. 10, the admission rate climbed to a peak at ages 4-8 years and then followed a gradual downward trend with advancing age. For the comparable period in 1955, on the other hand, admission rates peak at ages 5 and 6 years, then drop markedly among 7- and 8-year-olds, and rise again at age 9 years. Thus the vaccine appears to have caused a distinct decrease in 1955 poliomyelitis admission rates for 7- and 8-year-olds. This, of course, is the age group reached by the vaccination program supported by the National Foundation for Infantile Paralysis. Again, the tentative nature of these data must be stressed. As mentioned before, they are based on preliminary, and as yet incomplete, reports of the experience of children of limited age groups. But no major departure from these favorable trends is anticipated, although the precise rates may change.

RADIOLOGICAL DIAGNOSIS OF RETAINED SURGICAL SPONGES

Herbert M. Olnick, M.D., Macon, Ga., H. Stephen Weens, M.D.
and
James V. Rogers Jr., M.D., Atlanta, Ga.

As long as nonabsorbable materials are used in the manufacture of surgical gauze, the specter of the retained sponge or laparotomy pack will continue to be a nightmare to the practicing surgeon. With surprising ease difficult to appreciate, an operative instrument or pack may disappear from sight while the mind and hands of the operator are preoccupied with the operative procedure. Such unfortunate accidents are known to have occurred even with skilled surgeons working under the most favorable conditions. The relative paucity of reports on the subject is easy to understand in view of the stigma and medicolegal liability implied in the admission of the technical oversight.

SURGICAL PATHOLOGY

The clinical and radiological features of the retained sponge can be understood in the light of the surgical pathology. The body reacts to the foreign substance by inflammation that may be of an aseptic fibrinous type, producing adhesions and encapsulation, or may be exudative in nature, with abscess formation, with or without secondary bacterial invasion. The development of an abscess represents an attempt by the body to extrude the foreign material, either externally or into a hollow viscus. A sinus tract or fecal fistula may develop, which can heal only after spontaneous expulsion or surgical removal of the irritant. Abscesses comprise most of the cases in the early postoperative period, since they produce urgent clinical symptoms. Fever, anemia, and weight loss to a degree simulating cachexia from advanced cancer may be present.

Low-grade inflammation creates adhesive encapsulation and produces obstructive symptoms, usually after several months, although this may occur in the immediate postoperative period. The fibrous capsule with dense inflammatory adhesions may produce a palpable mass. In rare instances, calcium may be deposited in the fibrous capsule regardless of whether the foreign material is in contact with intestinal or urinary contents. While all of the reticular spaces of the sponge may be filled with just fluid or gas, later the entire sponge may become organized into a solid mass.

RADIOLOGICAL FEATURES

Our paper is not intended to expand upon the classic work of Crossen and Crossen[1] who have discussed in great detail the clinical, pathological, and statistical features of retained foreign bodies. These authors appreciated many years ago the potential value of the x-ray examination and discussed some of the earlier efforts to incorporate radiopaque material in gauze. Our paper purports, by means of illustrated case reports, to enlarge upon the seldom-described radiological features that may be of considerable importance in the proper recognition of these retained foreign bodies, whether they be opaque or nonopaque.

While in some cases there is no roentgen evidence, in most cases one or more signs will be seen. The most im-

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Read before the Section on Radiology at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 7, 1955.

Dr. I. Berger of the Veterans Administration Hospital, Chamblee, Ga gave permission to report the case illustrated in figure 3.

[1] Crossen, H. S., and Crossen, D. F.: Foreign Bodies Left in the Abdomen: The Surgical Problems, Cases, Treatment, Prevention: The Legal Problems, Cases, Decisions, Responsibilities, St. Louis, C. V. Mosby Company, 1940.

portant clue is the presence of the radiopaque insert that most operating rooms are now utilizing in their surgical gauze. The x-ray detectable sponges and laparotomy packs commercially available contain a radiopaque insert made of barium sulfate and inert plastic materials.

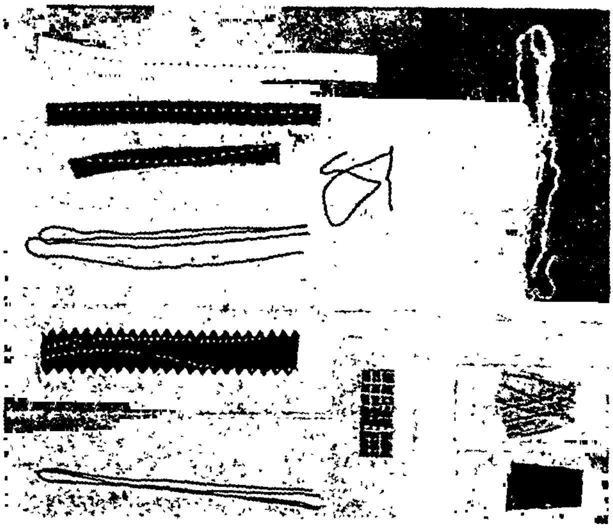

Fig. 1.—Radiographic appearance of commercially available radiopaque inserts, grouped according to manufacturer. Those on the left have superseded *those shown on the right.*

The morphology of the inserts differs with each manufacturer. However, there are only two types: the monofilament or thread type, and the ribbon type. Figure 1 illustrates the x-ray appearance of the original and current inserts that are or have been commercially available. It must be appreciated that the appearance of the individual tell-tale sign will vary with folding and twisting of the sponge. The barium of the older type inserts tended to diffuse or collect into irregular form after long-continued retention in body tissues. Gastrointestinal studies tend to obscure the radiopaque inserts, since the fiber pattern resembles that of the mucous membrane of the intestine.

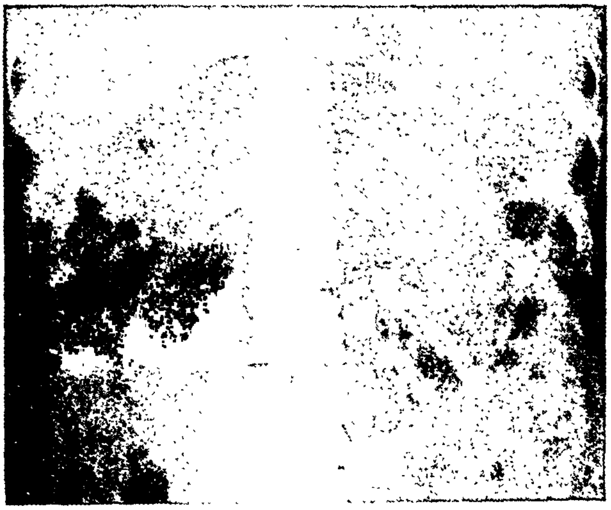

Fig. 2.—Obstructive symptoms six weeks after cesarean section. Note whirl-like gas pattern surrounding the filiform opaque insert. Operation *revealed laparotomy pack totally within the jejunum.*

The sponge is also recognizable by the presence of gas trapped between the fibers, *giving a characteristic* whirl-like configuration (fig. 2). In some instances, the gas is intestinal in origin, and in other instances it is formed by bacteria in an abscess. A palpable mass corresponding to the foreign body and the surrounding tissue reaction is often sharply outlined on the roentgenogram (fig. 2). If adherent to the parietal peritoneum, it will be fixed. If encapsulated entirely by the mesentery, it may be freely movable. Our series contains one case in which the sponge showed calcification (fig. 3). This is a rare manifestation. Crossen and Crossen stated that calcification occurred only when the sponge was in contact with the lumen of either the intestinal tract or the urinary tract. However, cases of calcification of retained sponges lying entirely within the peritoneal cavity have been reported.[2] The case illustrated in figure 3 *is one such instance.*

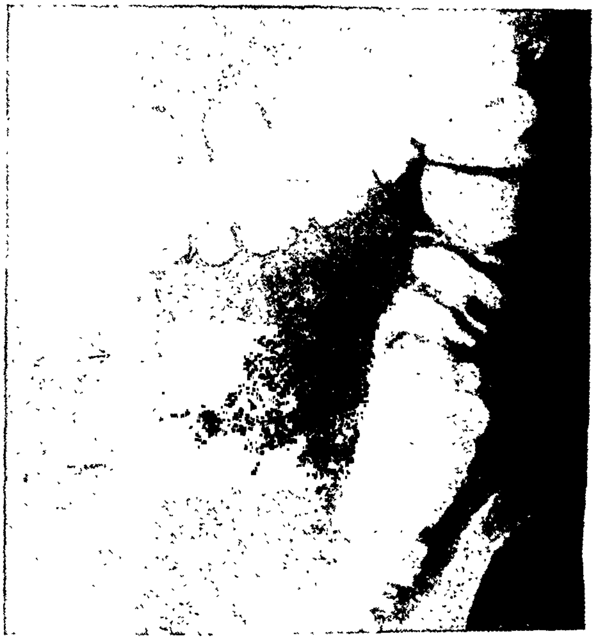

Fig. 3.—Roentgenogram taken 14 years after appendectomy. The patient had abdominal pain, nausea, and tenesmus. Note calcified mass overlying left side of L-4 and L-5 (arrows). Operation showed a degenerated sponge enveloped in scar tissue lying at the mesenteric border of small intestine.

If a sinus tract is present, the sponge may be visualized *indirectly by the injection of iodized oil.* This method of radiographic diagnosis was mentioned in a book by Crossen and Crossen, who cited two instances [3] from the literature wherein the diagnosis was made by this method. We were unable to find any recent cases in which use of this method was reported. The iodized oil enters the depths of the tract outlining the large pocket and fills the meshwork of the sponge, corresponding to its fiber structure (fig. 4). Injection of radiopaque oil was of diagnostic value in three cases in our series. In a similar fashion, barium administered for a gastrointestinal x-ray examination outlined the silhouette and interstices of a laparotomy pack within the small intestine.

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[2] Fair, G. L.: Foreign Body in the *Abdomen Causing Obstruction,* Am. J. Surg. 86: 472-475, 1953.

[3] Makai, E., cited by Crossen and Crossen.[4] Warneyer, O., cited by Crossen and Crossen,[4] p. 460.

Any instance in which a patient after operation has an unexplained mass, sinus tract, or intestinal obstruction should immediately put the radiologist on the alert for the possibility of a retained sponge. While most sponges nowadays have the opaque insert, patients operated on before the era of radiopaque sponges may still present themselves after many years to become today's diagnostic problem. Further, detection of the opaque insert may be hindered by overlying bony structures and by an atypical appearance of the insert itself.

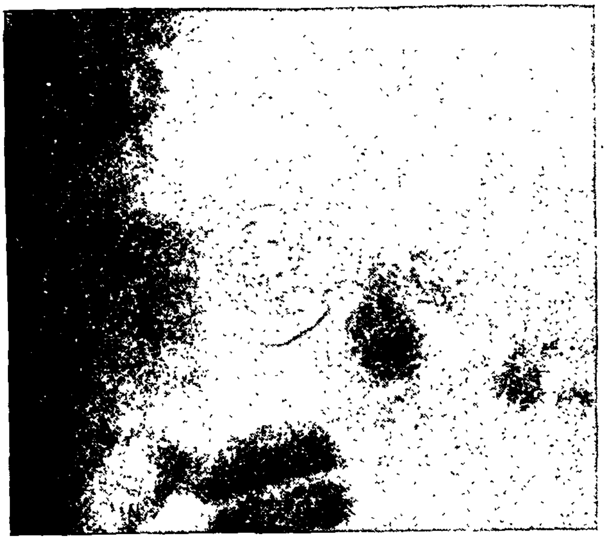

Fig. 4.—Roentgenogram taken after injection of iodized oil (Lipiodol) into retroperitoneal sinus tract outlining meshwork of sponge. Patient had sinus tract for 18 months after nephrostomy. After removal of sponge, the sinus promptly healed.

SUMMARY AND CONCLUSIONS

The following features in the recognition of retained sponges and laparotomy packs should be considered. 1. The radiopaque insert may be readily demonstrated by appropriate radiological studies. One should recognize, however, that the pattern of the insert may be distorted by folding, twisting, and disintegration. Also, a gastrointestinal pattern may be simulated by the appearance of the insert. 2. Gas formation in the sponge mesh may produce a whirl-like pattern that is detectable on radiological examination. 3. In many instances, the sponge may form a well-circumscribed mass by encapsulation. 4. In rare instances, calcification of this mass may take place that may be demonstrated on radiological examination. 5. In cases of sinus tract development, injection of opaque material into the sponge mesh identifies the retention of the foreign body. 6. If the foreign body ruptures into the intestinal lumen, a bizarre pattern may be demonstrated on gastrointestinal examination. While such evidence is not present in every case of this serious surgical complication, careful attention to the radiographic manifestations described here permit, in many instances, accurate diagnosis.

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EIGHT PATIENTS WITH ADRENAL CORTICAL HYPOFUNCTION SURVIVING MORE THAN FIFTEEN YEARS

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The purpose of this communication is to report the unusually prolonged survival time in several cases of adrenal cortical hypofunction (Addison's disease). Eight have survived from 15 to 18 years. The cases here reported fall into two categories. 1. In three early cases, recorded in 1940, the patients survived 15 years or more. Judged by present-day standards, their treatment may be regarded as inadequate in several respects, though in two of the three cases Swingle's cortical extract (noncommercial adrenal cortical hormone with a daily increment of sodium as chloride citrate and bicarbonate) and adequate sodium were used after 1933. 2. In eight consecutive cases of adrenal cortical hypofunction, the patients were placed on a regimen of Swingle's cortical extract between 1933 and 1940. Their treatment, I believe, has been adequate and highly satisfactory. Since all the cases have been previously reported in considerable detail, only thumbnail sketches are presented here.

REPORT OF CASES

Case 1.—A 44-year-old man had a diagnosis of adrenal cortical hypofunction made at the Mayo Clinic, Rochester, Minn., in 1917. It was considered to be secondary to tuberculosis of the adrenal glands; this was finally confirmed at autopsy in 1935. The case was remarkable not only for its long survival of 18 years, but also because the patient ran the gamut of many forms of therapy. He was one of the first cases in which diminution of the blood and plasma volume were recognized as a factor in the crises of the disease, and one of the first cases in which bilateral calcification of the adrenals was demonstrated clinically by x-ray and confirmed at autopsy.

Case 2.—A 37-year-old man was admitted to the Mayo Clinic in 1926 with syphilis and adrenal cortical hypofunction considered to be of syphilitic origin. X-rays of the adrenal glands revealed no calcification. The course of the disease was somewhat milder than usual. He was followed at the Mayo Clinic for a number of years and was reported to be alive and working 15 years later. Adrenal cortical hypofunction had developed in 1924, and the patient reported to me by letter in 1939, at which time he was taking an extra 8 gm. of salt daily and cortical hormone by injection once weekly. Since 1939 I have had no further contact with this patient.

Case 3.—A 26-year-old man entered the Mayo Clinic in 1922, complaining of great weakness and weight loss. He exhibited the typical pigmentation of the skin, lips, and buccal mucosa, together with many black freckles. This patient had developed a bleeding duodenal ulcer in 1921, for which he was kept in bed for eight weeks. Subsequently he developed the typical manifestations of adrenal cortical hypofunction. His pigmentation was extreme and was diagnosed by dermatologists as being caused by adrenal cortical hypofunction. This patient did exceptionally well on the Muirhead regimen (epinephrine and suprarenal cortex). In 1931 his family physician wrote me that recovery was complete and the patient was in perfect health and free of any evidence of adrenal cortical hypofunction. In my opinion this represents an arrested case or an actual cure.

Fortunately I saw the patient personally subsequent to his recovery. His pigmentation had completely disappeared, his blood pressure and weight were normal, and survival was 17 years.

The second group is comprised of five patients belonging to a series of eight given Swingle's cortical extract and extra sodium between 1933 and 1940. Five of these patients (60%) survived 15 years, of whom four are still living after 15 years, with an average survival of nearly 17 years. Four of the eight are dead, surviving 9, 10, 11, and 15 years respectively. A word should be said about those who died. In three of the cases two succumbed after undue exposure and one died through failure to keep himself supplied with medication. The fourth died of diffuse vascular disease and without adrenal insufficiency. This patient was regarded as having an arrested case and was considered actually cured of adrenal cortical hypofunction.

Case 4.—A 50-year-old man was referred to me in 1933 with the marked and unmistakable features of adrenal cortical hypofunction. His response to Swingle's cortical extract and extra salt was miraculous. For 15 years he continued to work daily as a chief executive. In December, 1948, he was exposed to a blizzard for which he was not prepared, walking for some miles in thin shoes and light clothing. After reaching home, chilled, he collapsed. His local doctor stayed with him throughout the night, but before dawn the patient went into a severe adrenal cortical hypofunction crisis and died. Had he not been so exposed he might have lived years longer. Autopsy confirmed the diagnosis of adrenal cortical hypofunction of tubercular origin.

The following four patients are still living and in excellent clinical condition. All are receiving active treatment.

Case 5.—A 32-year-old woman became ill with the "grippe" in 1937, after the birth of her second child. I saw her in consultation while she was hospitalized in Easton, Pa. Her pigmentation was marked, her weakness extreme, and her weight loss considerable. The diagnosis was unmistakably adrenal cortical hypofunction, and she was placed on a regimen of large doses of cortical hormone, together with extra salt and vitamin C. This was continued for six years with excellent results. During World War II the supply of cortical extract became limited so she was given implantations of pellets that have been continued for more than 10 years. Her pigmentation was marked. She has kept in touch with me intermittently throughout the years, and on her last visit two years ago, she appeared normal in every way and was living the life of a normal housewife.

Case 6.—A 21-year-old man was seen in the Delaware County Hospital near Philadelphia. He was in a serious crisis of adrenal cortical hypofunction and in a state of considerable mental derangement. He was given large doses of cortical extract and extra salt daily, a regimen he has continued for 15 years. He now leads the normal life of a normal young office man. He has had two minor crises, each of which kept him in bed for 10 to 14 days. Euphoria has been striking; however, he has remained thin, weighing 124 lb. (56.3 kg.); his systolic blood pressure has remained low, rarely exceeding 90 to 100 mm. Hg; and his pigmentation, though slight, has continued. With the hope of boosting his blood pressure, corticosterone was administered once weekly without noticeable results. Lately he has also taken 25 mg. of cortisone daily by mouth, also. This he claims has given him additional "pep." The patient was last seen three months previous to this writing, at which time his mother stated that his illness actually started before December, 1939, and that it had continued unchanged until I saw him in June, 1940. This patient considers himself well, and he adheres strictly to his regimen.

Case 7.—A 31-year-old woman was seen in my office in Philadelphia in June, 1939. Her clinical picture was typical of adrenal cortical hypofunction—weakness, exhaustion, nausea; vomiting, marked loss of weight, striking pigmentation, and hypotension. For 12 years she was treated exclusively with Swingle's cortical extract and additional salt and did well except for infrequent and minor crises. During the years she developed some generalized arthritis that gave her considerable distress. This in part led to some changes in her management—the use of pellets and of cortisone and small doses of testosterone, along with infrequent and small injections of the cortical extract. When last seen a few months ago her clinical condition was excellent, the pigmentation and the arthralgia were markedly decreased almost to the vanishing point, and the euphoria was striking.

Case 8.—A 32-year-old man came to my attention in May, 1937, when his illness had been diagnosed as adrenal cortical hypofunction by his doctor in Albuquerque, N. Mex. He was critically ill at that time, and I advised against moving him but conferred with his physician by phone and letter. He was treated with the cortical extract and a daily increased increment of salt. In December, 1937, he consulted me in my office, at which time the diagnosis was confirmed. The patient did so well on treatment that during the following summer, on his own initiative, he reduced the medication to a minimum, whereupon he experienced a serious crisis and had to be brought back to the hospital in an ambulance. Following this, for 15 years the regimen has been continued religiously. Some three years ago he raised the question of treatment with cortisone. It was gradually added to his regimen and proved highly successful. The patient is still well, 18 years later.

COMMENT

My major reason for continuing this regimen has been my fear of discontinuing it. Human lives were at stake. To me this regimen seemed the best and the safest available. The salt treatment alone in adrenal cortical hypofunction proved ineffective, dangerous, and inexcusable. Many patients also need desoxycorticosterone acetate. In one series of cases known to me, six of the seven patients treated by pellet implantation died, the longest survival in the group being seven years. In this series of cases all the patients were living after 9 years, with an average survival of more than 10 years. This experience engendered confidence in the regimen and a strong reluctance to abandon it. Two patients recovered. Swingle's suprarenal cortical extract appears to be a fortunate mixture of adrenal hormones, the active principles being so balanced as to be generally effective in meeting the metabolic needs in cases of adrenal cortical hypofunction and yet devoid of any demonstrable toxic effects in any and all fields of metabolism concerned. I believe that this preparation may closely approximate the physiological mixture of principles secreted by the suprarenal glands, for nature rarely depends wholly on one hormone.

The chief and only drawbacks to Swingle's preparation have been its unavailability to the sick and its high cost. All the solutions I have used were prepared and standardized by Dr. Swingle in his own laboratory. While the cost has been reduced to a minimum, it is still beyond the reach of many patients. The results in this small series of cases indicate that the additional cost of treatment is entirely justified. In the light of these results it would seem desirable that some way be found of making this preparation more generally available and at a cost that is within the reach of the average patient.

While the specific regimen described is the chief factor in the prolonged survival of these patients, other factors undoubtedly enter into the picture, such as improved understanding of the disease and of the function of the adrenal glands, improved sanitation, better living conditions, the use of vitamins, the better care of patients with tuberculosis, and the control of intercurrent infections by antibiotics. Singly or collectively, none of these factors can be considered more than contributory to survival. However, the prolonged survival times here recorded (no deaths under 9 years, and five of eight patients surviving 15 to 18 years) suggest that this extract may have special virtues in prolonging life. It also suggests that it warrants further study.

SUMMARY AND CONCLUSIONS

The survival time in cases of adrenal cortical hypofunction (Addison's disease) has generally been materially prolonged through modern methods of treatment. Eight of my patients have survived for over 15 years. This covers an experience in the treatment of more than 150 patients seen during the last 35 years. In a series of eight consecutive patients (1933-1940) treated with Swingle's suprarenal cortical extract and with an adequate intake of salt daily, all survived for at least 9 years, seven survived 10 years or more, and five survived from 15 to 18 years. Two patients recovered. In several patients recourse was made to other adrenal preparations; two received pellet implantations late in the course of their disease and two were given small doses of cortisone. The survival time in this series sets a new record in adrenal cortical hypofunction though the number of cases concerned is admittedly small. The results here presented suggest the desirability of finding ways and means to make Swingle's suprarenal cortical extract more generally available and at a lower cost or to compound some balanced mixture of adrenal hormones that will serve as an effective and inexpensive substitute.

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Housewives' Dermatitis.—[This] is one of the commonest of occupational hazards. All soaps and detergents degrease the skin to some extent, in proportion to their cleaning efficiency. The results are essentially the same, whether the skin fat is emulsified and rinsed off or whether it is removed by solution. The denuded keratin becomes exposed to the action of the cleaner, for a shorter or a longer time, depending upon the ability of the sebaceous glands to replace the lost fat and on the emulsifying and spreading properties of the sweat. . . . Once dermatitis has developed, avoidance of further exposure is essential, but at this stage rubber gloves are rarely tolerated. Mild cases recover with the use of bland applications; but in the severest forms recovery may take months or the dyskeratotic process may persist indefinitely because the germinal cells have been damaged. No cream can give back to denatured basal cells the power to form a normal keratinous layer. . . . Toilet soaps have a beneficial effect on the skin. . . . When the skin is cleaned with soap and water an adsorption layer of soap is formed and is converted in less than an hour into a layer of free fatty acids which cling tenaciously to the skin. These fatty acids have beneficial (bactericidal) effects as well as very occasional harmful (allergenic) effects. Toilet soaps rarely cause dermatitis although they may aggravate existing dermatitis as, for that matter, may water itself.—B. Russell, M.D., Advances in the Treatment of Skin Diseases, *The Practitioner*, October, 1955.

CLINICAL NOTES

FATAL POISONING WITH SODIUM FLUOROACETATE

REPORT OF A CASE

John L. Brockmann, M.D.
Arthur V. McDowell, M.D.
and
William G. Leeds, M.D., Hartford, Conn.

Extensive chemical research carried out in recent years has produced a rodenticide, sodium fluoroacetate, which has been found to be very effective and extremely toxic. Sodium fluoroacetate, or "1080" as it was called during the investigation period, is said to be one of the most noxious substances known, since it is toxic to all mammals, man included.[1] Sodium fluoroacetate was first reported by Kalmbach.[2] With this poison rat control can be much more easily and effectively carried out than ever before; however, because of its extreme toxicity (three teaspoons of the watered solution used for rats is sufficient to cause death in the adult human being) many necessary precautions have been taken in its employment and administration. It is distributed only to qualified members of governmental agencies and to properly insured and licensed pest control agencies and operators. In addition, strict regulations are imposed upon its use, and standard procedures are outlined in attempts to prevent the inadvertent poisoning of human beings and domestic animals. A technical bulletin is published by the manufacturers with instructions for usage.[3]

The drug is a colorless, odorless, and tasteless water-soluble salt. As a rat poison, it is prepared by dilution to one part in 300 or 500 parts of water. The drug is equally effective as a poison regardless of mode of entry. It may be absorbed through the intact skin but not readily; however, it is easily absorbed through cuts and abrasions.[4] It is rapidly absorbed in the gastrointestinal tract and may also be absorbed through the lungs by breathing dust containing the poison.[4] The theory has been advanced by several writers that sodium fluoroacetate acts as a metabolic poison producing its lethal effects, not as a free fluoride, but as an intact molecule.[4] The exact mechanism has not, as yet, been uncovered, but it is felt that sodium fluoroacetate competes in reactions where acetate normally takes part. It has been suggested

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From Hartford Hospital. Dr. Brockmann is now a lieutenant (j.g.) in the U. S. Naval Reserve.

Dr. Abraham Stolman, Toxicologist for the state of Connecticut, made the determinations of fluoride content. The Pathology Department of Hartford Hospital (particularly Dr. George McAdams) made the postmortem examination and synopsis of the findings.

1. Gajdusek, D. C., and Luther, G.: Fluoroacetate Poisoning: A Review and Report of a Case, Am. J. Dis. Child. **79**: 310-320 (Feb.) 1950.
2. Kalmbach, E. R.: "Ten-Eighty," War-Produced Rodenticide, Science **102**: 232-233, 1945.
3. Sodium Fluoroacetate ("Compound 1080") as a Rodent Poison, Monsanto Technical Bulletin no. 0-53, St. Louis, Monsanto Chemical Co., Organic Chemicals Division, 1948.
4. Sodium Fluoroacetate, Clinical Memorandum, Technical Development Branch, Communicable Disease Center, U. S. Public Health Service, Savannah, Ga., May, 1952.
5. Liebecq, C., and Peters, R. A.: The Toxicity of Fluoroacetate and the Tricarboxylic Acid Cycle, Biochim. et biophys. acta **3**: 215, 1949.

that this interference with acetate metabolism may cause a piling-up of citrate.[5]

Chenoweth and Gilman have studied extensively the reactions produced by sodium fluoroacetate in animals and have classified the animals in groups according to the reactions brought about in them by the agent.[6] The organ systems affected are chiefly the cardiorespiratory and central nervous systems. Briefly, the classification includes the following: group 1, in which the action is a cardiac one, with death due to ventricular fibrillation; group 2, in which there is both a cardiorespiratory and central nervous system response, with death in respiratory failure during convulsions or ventricular fibrillation; group 3, in which the primary effect is on the central nervous system, with no cardiac abnormality; and group 4, in which there is an atypical response, including bradycardia and respiratory depression. In man, sodium fluoroacetate has been found to produce a mixed response, with elements of cardiorespiratory and central nervous system damage similar to that produced in monkeys.[7]

According to the available literature, there have been 22 known cases of poisoning with sodium fluoroacetate, 16 of which were fatal [4]; however, only 2 cases have been reported in the medical literature to our knowledge. One of these was fatal, the other was not. Gajdusek and Luther in 1950 [1] reported a case of nonfatal poisoning in a 2-year-old infant, and in 1952 Harrisson and others [7c] reported a case of fatal poisoning. In each of these articles, the experimental and toxicologic literature was thoroughly reviewed, and the references are complete. Thus far there has been no case reported in which the exact quantity of the poison taken was known. Careful calculations in the cases mentioned have given approximations of the amount ingested. It has been estimated that about 5 mg. per kilogram of body weight is lethal to man. In the case reported by Harrisson and others a minimum of 6 mg. per kilogram was ingested.[7c] In this paper a case of fatal poisoning with sodium fluoroacetate is reported. We feel that this case is of particular interest because the patient lived for five days after ingesting the poison and extensive laboratory work was therefore possible. A postmortem examination with analysis of the organ contents was also obtained.

REPORT OF A CASE

A 17-year-old boy, son of a professional rat exterminator, entered the emergency room of our hospital at 4 a. m., Jan. 1, 1954, and told the nurse that he had ingested a solution of sodium fluoroacetate. The amount ingested could not be determined accurately, but a previously unopened 8 oz. can of the material was found in his room half empty. Apparently, the boy had dissolved a large amount of the poison in water and swallowed the solution, after which he promptly vomited. He stated that he had noted almost immediate epigastric pain. He came to the hospital about 45 to 60 minutes after this incident. At the time of admission the patient was alert and responsive but complained of epigastric pain. A gastric lavage with starch water and magnesium sulfate was carried out immediately. During this procedure, the patient gradually became more and more unresponsive, and by 5:20 a. m. he was comatose. A half hour later he had a grand mal convulsion associated with fecal incontinence.

Physical Examination.—Blood pressure was 110 mm. Hg systolic and 70 mm. Hg diastolic. The pulse was irregular at a rate of 72 per minute, and the respirations were 16 per minute. The patient was in deep coma, unresponsive to painful stimuli. The skin was warm and dry. There was dusky cyanosis of the nailbeds and lips. The pupils were constricted but reacted normally to light. The neck was supple. Lungs were completely clear throughout. Examination of the heart revealed the point of maximal impulse to be well localized in the fifth left intercostal space medial to the midclavicular line. There was a normal sinus rhythm, with frequent ventricular premature beats (about 16 to 20 per minute). The heart tones were of poor quality. No murmurs were heard. The abdomen was negative. Neurological examination revealed the cranial nerves to be intact, as far as could be determined. The abdominal reflexes were absent, and the Babinski sign was present bilaterally. There were frequent chewing movements of the jaws. The remainder of the examination was not remarkable. An electrocardiogram obtained at this time showed the rate to be 72 and showed occasional ventricular premature contractions, a prolonged Q-T interval, the QRS complex negative in lead 1, the T wave negative in leads 2, 3, and aVF, and the T wave notched in leads V_3, V_4, and V_6. This was interpreted as showing right axis deviation, ventricular premature contractions, and evidence of diffuse myocardial abnormality.

Drug Therapy.—The patient was given oxygen by nasal catheter and procainamide (Pronestyl) hydrochloride, 500 mg. in 500 cc. of 5% dextrose in water, intravenously. During the next four hours, the heart sounds improved in quality and the rhythm was completely regular. Phenobarbital sodium or amobarbital (Amytal) sodium was used to control the signs of cortical irritability. Eight hours after admission, the patient vomited some dark brown material, which gave a chemical reaction for blood by the benzidine test. Examination at this time revealed that the cyanosis had disappeared and the vital signs were normal. The skin was flushed. The heart seemed dilated as evidenced by a very diffuse point of maximum impulse, 2 or 3 cm. outside the midclavicular line. Coma persisted. The neurological signs mentioned above were again demonstrated.

During the next 12 hours, the patient became very restless, thrashing about in bed. There were frequent episodes of severe carpopedal spasm, while at other times all the muscles of the body became very spastic and it seemed that another grand mal seizure was imminent. These periods of neuromuscular hyperactivity were temporarily controlled by intravenous therapy with calcium gluconate, 10 cc. of a 10% solution. On the morning of the second day, acute pulmonary edema supervened. The patient was digitalized with lanatoside C. The pulmonary edema cleared readily, but coma persisted. The pupils were small and fixed to light, and the respiratory rate increased to 40 per minute. Blood pressure was 100/70 mm. Hg and the pulse 160 per minute and feeble. An electrocardiogram taken at this point revealed supraventricular tachycardia and the evidences of diffuse myocardial abnormality noted above. There were no premature beats. During the ensuing four hours, the pulse rate rose to 180 per minute and the blood pressure dropped to 84/0 mm. Hg. Cheyne-Stokes respirations became evident, and the heart became further enlarged. Suction of the upper respiratory tract had to be carried out frequently, and an endotracheal tube was inserted. Because of the hypotension, levarterenol (Levophed) bitartrate therapy, 4 mg. in 1,000 cc. of 5% dextrose in water, was started by intravenous drip. This produced no appreciable effect on the blood pressure, although the pulse slowed a little and seemed stronger. At 11:30 p. m. of the second day, examination showed no change in the physical findings, except that the pupils once again reacted to light. Levarterenol bitartrate therapy was discontinued, and procainamide hydrochloride, 500 mg. in 500 cc. of 5% dextrose in water, was again administered intravenously. Mephentermine (Wyamine) sulfate therapy, 15 mg. every two hours by intramuscular injection, was tried. Calcium gluconate was given repeatedly to control the carpopedal spasm.

Condition of Patient.—On the third day the clinical picture and forms of therapy remained unchanged except for a further drop in blood pressure to the point of being unobtainable. Another electrocardiogram showed no important changes when

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6. Chenoweth, M. B.: Monofluoroacetic Acid and Related Compounds, J. Pharmacol. & Exper. Therap. **97**: 383-424, 1949.

7. (*a*) Footnote 1. (*b*) Footnote 4. (*c*) Harrisson, J. W. E., and others: Acute Poisoning with Sodium Fluoroacetate (Compound 1080), J. A. M. A. **149**: 1520-1522 (Aug. 23) 1952.

compared with the previous ones, except for the addition of digitalis effect. The temperature continued to rise and reached a maximum of 104.6 F (40.3 C) late on the third day. On the fourth hospital day there was a tremendous increase in the amount of tracheobronchial secretions, which necessitated almost constant suctioning. On this day it was decided to alternate 5% alcohol in 10% dextrose in water intravenously with procainamide hydrochloride intravenously. This treatment was carried on through the fifth day, when the patient's condition seemed to improve a little. The blood pressure was obtainable at 100/60 mm. Hg, though the pulse remained rapid (180 per minute) and feeble. The heart sounds remained "flabby" in character. The extremities became warmer and had a good color. The muscular and carpopedal spasms decreased remarkably after the start of intravenous therapy with alcohol. On the night of the fifth day, the tracheobronchial secretions became so copious and tenacious that an adequate airway was impossible without a tracheostomy. This procedure was therefore carried out. Thick yellowish-white mucoid material was suctioned from the lower trachea, and the airway immediately sounded clear and dry. Examination of the lungs at this time revealed them to be well aerated throughout. Coma, rapid and feeble heart action, hypotension, the neurological signs noted above, and a good urinary output remained the principal features of the clinical course, together with a steadily rising temperature. At 3 a. m. on Jan. 6, 1954 (the sixth hospital day), the temperature reached 108 F (42.3 C) in spite of all measures to reduce it. From this point on the patient's respirations became extremely labored and rapid, the blood pressure once again was unobtainable, and the pulse increased to such a rapid rate that it was impossible to count it with any degree of accuracy. At 8 a. m. on Jan. 6, the patient died.

Postmortem Examination.—Postmortem examination revealed mediastinal emphysema, obvious and moderate in amount. The lungs were heavy (right 950 gm., left 750 gm.), edematous, and congested, but there was no frank consolidation. The bronchi were hemorrhagic but without exudate. Hemorrhagic-appearing mucosa was noted in the stomach but not in the esophagus. The spleen weighed 320 gm. and was red in color and firm to the touch. The right kidney contained a 2 mm., red-yellow area just beneath the surface. Other than congestion, the kidneys were normal. Crepitation could be felt and air bubbles could be seen in the adventitia of the aorta and immediate branches. The brain weighed 1,600 gm. and showed marked edema, with flattening of sulci and upward herniation of the cerebellum through the tentorium. Culture from the heart blood showed a moderate growth of hemolytic Micrococcus pyogenes var. aureus, coagulase positive. The remaining organs were grossly unremarkable.

Microscopic examination of the esophagus showed denudation of the epithelium here and there, with a coagulation necrosis present and minimal acute inflammatory reaction. The stomach mucosa was intact and essentially not remarkable. The lungs revealed a striking bronchopneumonia, with marked alveolar hemorrhages, congestion, and small clumps of bacteria. The brain contained small perivascular hemorrhages and changes in the ganglion cells compatible with the general cerebral edema. Finally, there was a small recent infarction in the cortex of the right kidney. Portions of liver, brain, kidney, pericardiac fluid, gastric contents, blood, heart, urine, and bile were examined for fluoride by the sodium silicofluoride test. The bile alone contained detectable amounts—0.02 mg. per 100 cc. by the zirconium-alizarin red test. The final anatomic diagnosis made was poisoning with sodium fluoroacetate; bronchopneumonia, with hemolytic septicemia due to a pyogenes var. aureus organism; focal infarction of right kidney; and mediastinal emphysema.

COMMENT

Since there is no known antidote to sodium fluoroacetate, therapy must be directed toward prevention of (1) serious cardiac arrhythmias, (2) central nervous system irritability, (3) peripheral vascular collapse, and (4) the general complications encountered in any patient who is comatose. In our recent experience with this disease entity, we have found certain agents that proved to be of definite, though short-lived, benefit to the patient. Myocardial irritability responded, at least temporarily, in a rather striking manner to the use of intravenously given procainamide hydrochloride, which completely abolished the premature ventricular contractions. Clinically, there was a distinct improvement in the quality of the heart sounds during and after the use of this drug. Several writers have agreed that procaine hydrochloride should be given by the intracardiac route in the case of ventricular fibrillation, known to be one of the immediate causes of death in human beings subjected to the poison. The ectopic beats, presumably the first signs of myocardial irritability, which might have progressed to more serious arrhythmias, such as ventricular tachycardia and ventricular fibrillation, were controlled by the use of procainamide hydrochloride. We feel that the possibility of death by ventricular fibrillation was prevented by use of this drug. The use of a digitalis preparation in the face of what was known to be a "toxic myocarditis" might give rise to some discussion. We had hoped to avoid the use of this substance, but our hand was forced by the intervention of acute pulmonary edema representing the most serious threat to life at the time it occurred. Short-acting lanatoside C was used because it was felt that this would relieve the pulmonary edema, which it did, without producing a cumulative cardiotoxic effect. There seemed to be no ill effects on cardiac irritability produced by this agent.

Secondly, the central nervous system manifestations, carpopedal spasm and generalized muscular hyperirritability, had to be dealt with. The barbiturates, calcium gluconate and magnesium sulfate, seemed to provide transient alleviation of these manifestations. With the institution of intravenous therapy with alcohol, these signs disappeared entirely and rather remarkably. It would seem likely, therefore, that this agent might, along with procainamide hydrochloride, be valuable in the therapy of this condition. In the third place, it was necessary to attempt to prevent death due to peripheral vascular collapse. In order to combat shock and to maintain an adequate renal blood flow, we used the vasodepressor drug mephentermine sulfate. We were thus able to maintain the patient's blood pressure above 100 mm. Hg systolic for a good part of the time and a good urinary output throughout the patient's hospital course. Finally, as in all cases of coma, alert nursing care was essential. Constant turning, frequent suctioning of the nasopharyngeal and even the tracheal and bronchial passages, use of alcohol sponges for fever, and nearly constant checking of the patient's vital signs were some of the more important of the many duties falling under the term nursing care.

In this case of fluoroacetate poisoning we considered, also, the use of agents recommended in the literature, such as magnesium sulfate in doses of 50 mg. per kilogram. This is known to prevent death in rats if given intramuscularly before or immediately after the ingestion of the poison. We also considered the use of monoacetin, which provides acetate and, thereby, theoretically produces its beneficial effect by this mechanism. We were advised by personal communication[8] that these agents were usually helpful only immediately after the intake of the poison; therefore, we relied on the therapy outlined herein and used much smaller doses of magnesium sulfate. Monoacetin was not available to us. It has also been suggested that chlorpromazine might be useful in that it provides an "artificial hibernation," which reduces central nervous system and cardiac irritability, as well as lowers the temperature.

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[8] Fairhall, L.: Personal communication to the authors.

SUMMARY

Certain drugs can be used with benefit in a case of sodium fluoroacetate poisoning. These are (1) procainamide (Pronestyl) hydrochloride for cardiac arrythmias, (2) intravenously used alcohol for central nervous system irritability, and (3) vasodepressor drugs such as mephentermine (Wyamine) sulfate to maintain blood pressure. In the future these drugs, which we feel prolonged the life of our patient, should be tried in cases of sodium fluoroacetate poisoning, as they may save the lives of patients who have ingested smaller amounts of the poison.

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TRANSILLUMINATORS AND ILLUMINATED RETRACTORS FOR RETINAL DETACHMENT AND SURGERY

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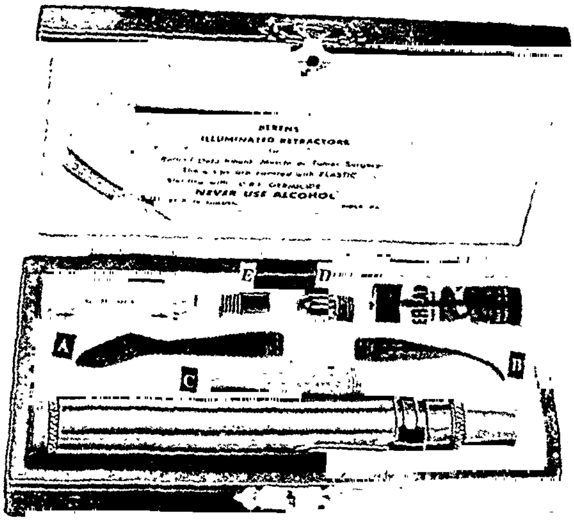
The need for a compact and practical source of illumination for certain eye operations and for diagnosis instigated the development of a set of plastic retractors and transilluminators. These devices have been found to be useful and practical for retraction illumination, focal illumination, and transillumination of the eyeball.

A set of five tips, a sturdy flashlight handle, batteries, and an extra light bulb are encased in a compact leather case (see figure). The flashlight handle is made in two sizes. The small handle accommodates the no. 912 Eveready batteries, and the larger handle accommodates the regular no. 915 Eveready batteries, as well as the new long-life mercury batteries. The handles are machined from aluminium and are clear anodized, to prevent tarnishing. They contain no springs nor switches to wear out and are controlled by turning the base of the small flashlight and the base or top of the larger one. The three metal parts of the flashlight may be boiled or sterilized in alcohol and the inexpensive standard bulb and batteries inserted after sterilization. Three of the plastic light tips have a metallic mirror coating and are covered with plastic lacquer, allowing light to emerge only at the light-emitting surface.

The illuminated retractor (figure, *A*) is a modification of a retractor previously described [1] and has proved invaluable in operations on the retina and the inferior oblique muscle,[2] in orbital operations, and especially in evisceration of the eyeball.[3] The curved plastic tip (figure, *B*) permits light to emerge from the tip of the inner surface of the curve and is useful for transillumination of the posterior part of the globe in cases where tumors are suspected and for locating posterior retinal tears. The plastic tip, which is bent at a right angle (figure, *C*), is especially useful in examining the eye and transilluminating teeth and has been recommended as an accessory for a pocket flashlight for physicians.[4] The focal illuminator (figure, *D*) provides oblique illumination for the eye and may also be used in the examination for Purkinje vascular images. A cobalt blue glass tip (figure, *E*) is used for examining a fluorescein-stained cornea. The plastic tips may be sterilized in C. R. I. germicide (methyldodecylbenzyltrimethyl ammonium chloride, 17.5%, and inert ingredients, by weight, 82.5%). Neither alcohol nor boiling water should be used for sterilization of the plastic parts.



Transilluminators and illuminated retractor for retinal detachment and muscle and tumor surgery. *A*, plastic retractor; *B*, transilluminator for posterior part of the eyeball; *C*, transilluminator for anterior part of the eyeball; *D*, focal illuminator; and *E*, cobalt blue glass illuminator.

The advantages of the flashlight include the sturdy construction with no springs or switch, which wear out, and the fact that the flashlight may be sterilized without harming the instrument. Standard bulbs and batteries are used and offer no problem in replacement. The various plastic tips provide excellent illumination for retinal and muscle and tumor surgery and focal illumination for examination. The plastic tips are easily changed and present no problem so far as breakage is concerned. The set of transilluminators and illuminated retractors, flashlight, batteries, and the cobalt glass tip are fitted into a compact leather case. The instrument is also available with a cord for use with a rheostat.

708 Park Ave.

This study was aided by a grant from the Ophthalmological Foundation, Inc., and the Department of Research of the New York Association for the Blind.

The apparatus described is made by R. O. Gulden, Philadelphia 20. The long-life mercury batteries are made by P. R. Mallory & Co., Inc., North Tarrytown, N. Y. The C. R. I. germicide is made by Storz Instrument Co., St. Louis.

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[2] Berens, C.: Cole, H. G.; Chamichian, S., and Enos, M. V.: Retroplacement of the Inferior Oblique at Its Scleral Insertion, Am. J. Ophth. **35**: 217 (Feb.) 1952.

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THE CHANGE FROM ANTIBIOTIC-RESISTANT TO ANTIBIOTIC-SENSITIVE TUBERCLE BACILLI

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The emergence of tubercle bacilli that are resistant to any antibiotic is an adaptation occurring spontaneously as a result of selective mutation for survival.[1] This phenomenon occurs in the laboratory and seems to occur also in patients. Its occurrence is related to the size of the original organism population and the concentration of the drug or drugs, but there must be bacterial multiplication for this selective mutation to occur. Loss of resistance is reported in a few strains resistant to 10 mg. per cubic centimeter of streptomycin after many months (22 to 42), with 10 to 21 transplants, but organisms resistant to high concentrations of streptomycin, 100 mg. per cubic centimeter, maintain this resistant characteristic. Courmont and others[2] found coexistence of bacilli sensitive and resistant to streptomycin in sputum, and Canetti and Saenz,[3] along with Medlar and others,[4] found variance in streptomycin resistance of tubercle bacilli from different pulmonary lesions in the same disease. Johnson and others[5] found not only that tubercle bacilli from embalmed bodies would grow but that organisms isolated before death and after death from different organs within the body and, indeed, from different areas of the lung might have different sensitivities. Stern and Goldman[6] found this to be true in resected specimens and found no correlation between type of pathological lesion and the resistant organisms. Mitchell and others[7] reported the recovery of streptomycin-sensitive tubercle bacilli from a patient who had previously yielded highly resistant bacilli. Incze[8] reported the reversibility of isoniazid-resistance in 5 of 56 patients during a six months' period when other drugs were added to the treatment program. Thus, if the lesion with resistant organisms was resected, then any organisms recovered later might be sensitive, or, if a new antibiotic were added that would control the growth of these resistant strains, then sensitive organisms might predominate in later cultures.

Results of Sensitivity Studies with Streptomycin and Isoniazid

Resected, Case No.	Sensitivity Information		Therapy	Complications
	Streptomycin	Isoniazid		
1	SR * 5/26/52 SS 7/22/52	....	Isoniazid, 250 mg. daily, introduced on 4/11/52. Change in sensitivity following new drug	None; discharged
2	SR 6/24/52 SS 8/20/52 SR 10/ 5/53 SPR 12 3/53	.... IS † 8/20/52 IR 10/ 5/53 IS 12/ 3/53	Isoniazid, 250 mg. daily, introduced on 7/21/52. Sensitivity change following new drug for control No change in treatment for 8 mo. No change in chemotherapy between 10/5/53 and 12/3/53	Bronchopleural fistulas; discharged
3	SPR 8/10/53 SS 9/21/53	IPR 8/10/53 IS 9/21/53	Streptomycin, 1 gm. twice a week, and isoniazid, 200 mg. daily, started on 9/11/53 after 9 mo. without therapy	Bronchopleural fistulas; discharged
4	SR 8/14/50 SS 7/28/52	....	Had been receiving isoniazid for 3 mo. Cavity resection 2½ mo. before	Bronchopleural fistulas; still positive
5	SR 3/31/52 SPR 12/11/52	....	No change in therapy during interim. Organisms partially streptomycin resistant cultured from lung cavity scrapings from a surgical specimen	Positive culture one year later; discharged Reactivated
6	SR 11/13/50 SS 4/10/52 SR 8/26/52 SS 10/22/52 SR 1/16/53 SR 4/ 7/53	.... IR 1/16/53 IS 4/ 7/53 IR 7/22/53 IR 3/15/54 IS 6/17/54	No therapy during interim Isoniazid for 4½ mo. No change in isoniazid routine No change in therapy Surgical resection one month before No change in therapy. Streptomycin-resistant organisms continued	Bronchopleural fistulas; still positive
7	....	IPR 8/17/53 IS 12/16/53	No change in isoniazid therapy	Death
8	SR 5/19/53 SPR 10/28/53	....	No change in chemotherapy during interim Thoracotomy and thoracoplasty on 8/10/53	Bronchopleural fistulas; death
9	....	IR 11/24/52 IS 1/24/54	Same chemotherapy for 8 mo. of interim and then no drugs	None; discharged
10	SR 8/21/50 SS 3/31/52	.... IR 12, 2/52 IPR 5/18/53	Streptomycin for 1½ mo. No change in drugs Isoniazid for 1 yr.	Death
11	SS 12/31/53 SS 3/10/54 SR 5/25/54 SPR 7/21/54	IS 12/31/53 IS 3/10/54 IPR 5/25/54 IS 7/21/54	Streptomycin, 1 gm. twice a week, and isoniazid, 175 mg. daily, introduced January, 1953 Resections: right upper lobe and right middle lobe 3/10/54; right lower lobe 4/12/54	Bronchopleural fistulas; still positive
Medical, Case No.				
1	SPR 5/26/52 SS 6/30/52	....	No change in chemotherapy	Still positive
2	SS 1/29/53	IR 1/29/53 IS 6/19/53	None for 5 mo. None for 10 mo.	Still positive
3	....	IR 6/ 8/53 IS 9/22/53 IR 12/14/53	No change in drugs during entire time	Death

* SR, streptomycin resistant; SS, streptomycin sensitive; SPR, partially streptomycin resistant.
† IS, isoniazid sensitive; IR, isoniazid resistant; IPR, partially isoniazid resistant.

In 14 of our patients we have seen the change from resistant to sensitive organisms to streptomycin or isoniazid occurring separately or in both drugs. Studies of sensitivity to 100 mg. per cubic centimeter of streptomycin and 20 mg. per cubic centimeter of isoniazid are done. The table shows the effort to correlate these changes with the addition of a new antibiotic or resection of the diseased tissues on one side.

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[1] Anderson, W., and Kaake, M.: In Vivo Development of Streptomycin Resistance by Tubercle Bacillus, Canad. M. A. J. **62**: 59-61, 1950. Daddi, G., and Lucchesi, M.: The Persistence of Streptomycin-Resistance of the Tubercle Bacilli in Vitro, Ann. Ist. Carlo Forlanini **13**: 155-156, 1951. Owen, C. R., and others: Susceptible, Resistant, and Dependent Tubercle Bacilli Isolated from Patients Treated with Streptomycin, Am. Rev. Tuberc. **61**: 705-718, 1950. Yegian, D., and Vanderlinde, R. J.: Resistance of Tubercle Bacilli to Chemotherapeutic Agents: Review of Basic Biological Considerations, ibid. **61**: 483-507, 1950.

[2] Courmont, P.; Galy, P., and Déries, G.: Co-Existence in Same Sputum of Bacilli Sensitive and Resistant to Streptomycin, Compt. rend. Soc. de biol. **144**: 4-6, 1950.

COMMENT

There is no correlation between the addition of a new antibiotic or resection. The frequent changes from resistance to sensitivity and back in a seesaw manner seen in some of these patients to both streptomycin and isoniazid makes the probability of mutations unlikely. Therefore, the sputum samples obtained were probably from different lesions within the lungs. A correlation of the end-results in these 14 patients was most informative. There were 11 resections, with three deaths occurring while sputum samples were still positive, two within 48 hours of operation and the other six months after resection. The bronchial sutures, at autopsy, were all loose due to tissue absorption or the sutures were spit out. In these 11 resections, six patients developed bronchopleural fistulas that could not be closed by revision thoracoplasty or muscle graft, and, when further resection was done on one patient, that bronchus also opened. In all of these patients with bronchopleural fistulas there were organisms resistant to both drugs.

Three patients have been treated medically, with one death to date, but in the other two patients tests are still positive and will probably continue so until their death. In only five patients have tests become negative; these persons have been discharged. All persons in this group had over one year of chemotherapy, and all but one were admitted before 1952. In patients with organisms resistant to one major antituberculous drug, conversion is slower than in those with organisms sensitive to both,[9] but in the latter conversion is not spontaneous.

CONCLUSIONS

Patients with tubercle bacilli resistant to both streptomycin and isoniazid do not have spontaneous conversion of sputum. When subjected to resection, these patients are poor operative risks and have a high incidence of complications (bronchopleural fistulas, positive cultures after operation, and death). The change in bacilli from antibiotic-resistant to antibiotic-sensitive is due to a "sampling process" and not to a mutation. By this we mean that the resistant and sensitive organisms probably come from different lesions in the lungs.

Box 248 (Dr. Allen).

3. Canetti, G., and Saenz, A.: Streptomycin-Resistance of Strains of Koch's Bacilli from Different Pulmonary Lesions of Same Disease, Ann. Inst. Pasteur **80**: 238-254, 1951.

4. Medlar, E. M.; Bernstein, S., and Reeves, F. C.: Demonstration of Streptomycin Resistant Tubercle Bacilli in Necropsy Specimens, Am. Rev. Tuberc. **63**: 449-458, 1951.

5. Johnson, B. H.; Davis, F.; Jamison, R. W., and Marti, W. J.: Viability and Chemotherapeutic Sensitivity of Tubercle Bacilli Isolated from Pulmonary and Other Lesions in Embalmed Bodies at Autopsy: Case Report and Clinico-Pathologic Correlation of Cases Studied to Date, Dis. Chest **23**: 686-692, 1953.

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8. Incze, J. S.: Reversibility of Isoniazid Resistance Developed in Mycobacterium Tuberculosis, Dis. Chest **26**: 127-132, 1954.

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CHRONIC BRUCELLAR PYELONEPHRITIS SIMULATING TUBERCULOSIS

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and
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The response to infection with Brucella is characterized by the formation of granulomatous lesions, particularly in those organs comprising the reticuloendothelial system. While the majority of patients with brucellosis recover without residual effects, chronic localized infections may involve the bones, joints, bursae, meninges, endocardium, lungs, liver, spleen, epididymides, testes, and kidneys. Such infections mimic tuberculosis and often cannot be differentiated histologically from tuberculosis. The present report is concerned with a patient in whom both the clinical course and pathological findings of brucellosis closely simulated tuberculosis. In addition, the patient presented several unusual features of brucellar infection. Localization of the disease in the urinary tract is an infrequently reported complication, while caseation of the tissues is a rare phenomenon in human brucellosis.

REPORT OF A CASE

A 46-year-old man was in apparent excellent health until April, 1954, when persistent urinary frequency, nocturia, and dysuria developed. In June, 1954, during an episode of colic in the left flank, a stone was passed through the urethra. Thereafter intermittent pyuria and hematuria occurred. Fever, chills, malaise, and other constitutional symptoms were all denied. The medical history and family history contained no significant details.

Physical Examination and Laboratory Data.—On July 26, 1954, the patient was admitted to the urological service of the University of Minnesota Hospitals. The only physical abnormalities were a temperature of 99.2 F (37.3 C) and an indefinite mass palpated in the right flank. The hemoglobin level was 11.9 gm. per 100 cc. The white blood cell count was 12,250 per cubic millimeter; the differential included 84% polymorphonuclear neutrophils, 12% lymphocytes, 2% monocytes, 1% eosinophils, and 1% basophils. The erythrocyte sedimentation rate was 106 mm. per hour (Westergren). The blood urea nitrogen level was 61 mg. per 100 cc. A urinalysis showed 1+ proteinuria, with numerous erythrocytes and leukocytes in the sediment. A routine urine culture yielded coagulase-negative Micrococcus pyogenes and diphtheroids. No acid-fast bacilli were found in smears of the urinary sediment. An intradermal test with 1:100 dilution of old tuberculin was negative. X-ray films of the abdomen revealed an enlarged left kidney with multiple calcifications in the upper portion. Following intravenous pyelography, no dye excretion from the left kidney was seen, while moderate hydronephrosis was present on the right (fig. 1). An aortogram confirmed the enlargement of the left kidney and demonstrated decreased vascularity of the upper portion, no evidence of tumor being noted. Cystoscopic examination revealed a severe and diffuse granular cystitis, and biopsy of the mucosa demonstrated only chronic granulation tissue. Attempts at retrograde dye studies of the kidney were unsuccessful.

Therapy.—The findings of cystitis and bilateral renal disease with calcification strongly suggested tuberculosis. However, in view of the negative tuberculin test and the absence of acid-fast bacilli in the urinary sediment, a diagnosis of brucellosis was suspected. Brucella agglutinins were absent in the serum. Specimens of blood and urine were cultured specifically for Brucella. After 10 days' observation, during which time the patient had

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received streptomycin and aminosalicylic acid, these cultures did not reveal any growth. A clinical diagnosis of tuberculosis appeared most probable and a nephrectomy of the left kidney was performed on Aug. 5, 1954. The kidney was massively enlarged, and tissue was extensively replaced by numerous caseous abscesses (fig. 2).

On the day following surgery, Brucella suis was isolated from a culture of urine that had been under observation for several days. Br. suis was also isolated on direct culture of the excised kidney. When the patient was requestioned, he stated that he had formerly been a farmer. He had been repeatedly exposed to cattle with Bang's disease and had drunk raw milk from herds known to be infected. The last known exposure, however, had been in 1944, 10 years previous to this illness.

Course.—Postoperatively the patient received streptomycin, tetracycline, and penicillin. The blood urea nitrogen level, which was 89 mg. per 100 cc. prior to surgery, rose slowly thereafter. On the third postoperative day, intestinal obstruction developed. Despite gastric suction, this progressed and necessitated a cecostomy on the fifth day. Thereafter renal insufficiency supervened rapidly. By the eighth postoperative day anuria developed and the blood urea nitrogen level rose to 199 mg. per 100 cc. On the ninth day hypotension appeared. Despite the use of phenylephrine (Neo-Synephrine) hydrochloride, ephedrine, and arterenol, irreversible shock developed, and the patient died. Autopsy was not permitted.

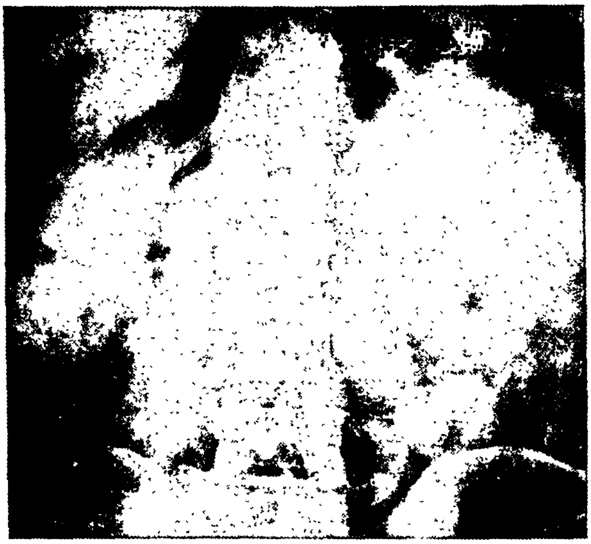

Fig. 1.—Intravenous pyelogram in patient with brucellar pyelonephritis. Note hydronephrosis of right kidney and absence of excretion from enlarged left kidney.

Further Laboratory Tests.—The removed kidney appeared typical of tuberculosis, both grossly and microscopically. Caseous material was found in several parenchymal abscesses and also in the pelvis. Yellowish nodules of various sizes were scattered throughout the cortex. Microscopic examination showed severe parenchymal destruction. Only a few areas of diluted tubules remained. The glomeruli were scant, and the majority were atrophic. A few glomeruli appeared normal. Throughout both cortex and medulla, there were numerous areas of mononuclear infiltration in which renal parenchyma was not discernible. In other sections, numerous granulomatous lesions with central caseation were found scattered throughout (fig. 3*A*). These lesions were composed of mononuclear cells at the periphery, epithelioid cells in the midzone, and caseation centrally (fig. 3*B*). Multinucleated giant cells were found both within these granulomas and at the periphery of the sheets of mononuclear infiltration. Within the more extensive and caseous lesions, eosinophilic cells were prominent. Careful searching of all sections revealed no acid-fast organisms. In sections stained with the Giemsa technique, cells containing multisized bodies with various staining reactions were prominent. With the use of special staining techniques, these cells were identified as mast cells.

Cultures directly from the excised kidney yielded no acid-fast organisms. A saline suspension of the kidney was injected into two guinea pigs. One animal died after three weeks. Autopsy of the animal revealed only a Pasteurella infection. No evidence of tuberculosis or brucellosis was found in the other animal, killed eight weeks after injection. The absence of Brucella agglutinins on routine testings of the patient's serum prompted further immunologic studies, which were done by Dr. Wendell Hall (fig. 4). The addition of the patient's serum in a dilution of 1:80 blocked the appearance of agglutination in a serum known to contain a high titer of agglutinins. In Coombs' test, the addition of globulin to the routine agglutination procedure caused agglutination in a 1:160 dilution of the serum. Centrifugation of the patient's serum with the standard tube Brucella antigen brought about agglutination at a 1:320 dilution. These results conclusively demonstrated the presence of blocking Brucella antibodies.

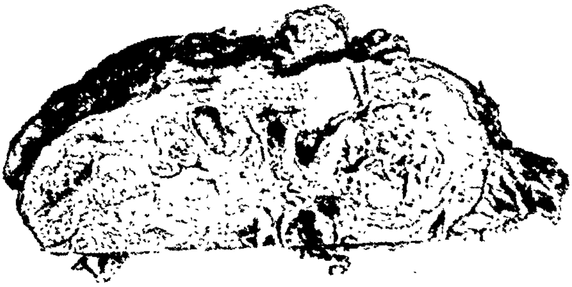

Fig. 2.—Left kidney after formaldehyde solution N. F. (Formalin) fixation. Note extensive caseous abscesses.

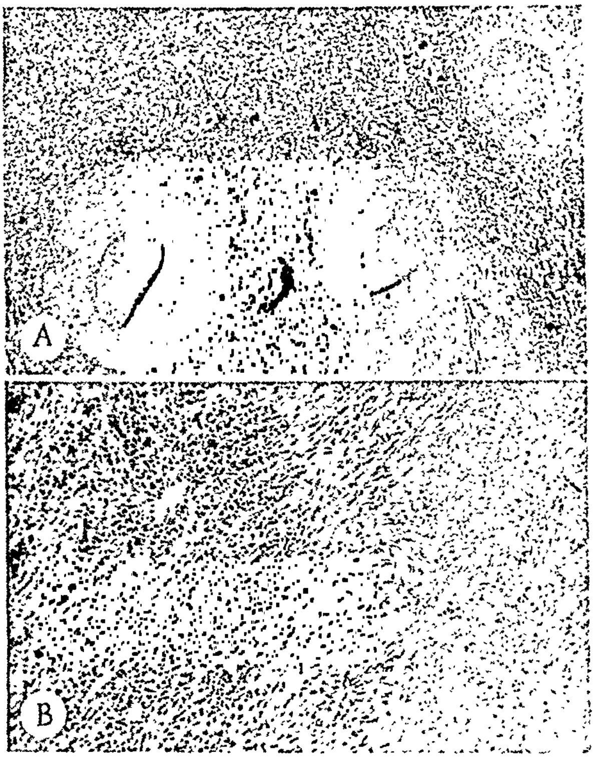

Fig. 3.—Photomicrographs of left kidney. *A*, extensive granulomatous infiltration and numerous tubercles. *B*, at the edge of a caseous lesion. Note mononuclear cells, epithelioid cells, and central caseation.

COMMENT

The resemblance to renal tuberculosis in this patient with proved brucellar pyelonephritis is remarkable. That the features of caseation, calcification, hydronephrosis, and secondary cystitis, all pathognomonic of renal tuberculosis, may also occur in brucellosis is not widely appreciated. Indeed, few reports of brucellosis involving the urinary tract have been recorded. This paucity in all probability reflects a low index of suspicion of brucellosis rather than the true incidence of urinary tract involvement. Support for this statement stems from data reported in 1905 by Kennedy[1] of the British Mediterranean Fever Commission. Fifty-four per cent of the patients with brucellosis from Br. melitensis had positive urine cultures. In some instances, Brucella organisms were successively cultured from urine for many months. These impressive data would indicate that brucellosis localized in the urinary tract may occur more frequently. Such an infection was not reported, however, until 1936, when Hardy and associates,[2] in a review of human brucellosis in Iowa, cited instances of cystitis and pyelonephritis that were initially thought to be tuberculous in origin but that on culture proved to be due to infection with Brucella. In 1939, Clark[3] reported a large series of patients with presumed brucellosis of the urinary tract. His reports unfortunately lack corroborative cultural or serologic data. In 1952, Weed and associates[4] presented a summary of a case similar to the present report. Excision of a 2 cm. mass from the right kidney of this patient revealed tissue having a calcific and caseous granulomatous appearance. Br. suis was cultured from this mass. In that same year, Greene and others[5] reviewed the literature concerning brucellar pyelonephritis and added two cases of patients with cystitis and calcific pyelonephritis, one due to Br. melitensis and the other to Br. suis. Two similar cases, in which the patients were both infected with Br. abortus, were reported in 1954 by Bickel[6] in Switzerland. In addition to these instances of pyelonephritis, references to nephritis in brucellosis are also found in the continental literature.[7]

TECHNIQUE	CONTROL AGGLUTINATION	AGGLUTINATION IN SERUM DILUTIONS 1:20	1:40	1:80	1:160	1:320	1:640
Standard tube (24 hr.)	0	±	1+	0	0	0	0
Blocking	3+	±	1+	2+	3+	3+	3+
Coombs' test	0	2+	4+	4+	1+	±	0
Centrifugation	0	1+	4+	4+	1+	1+	0

Fig. 4.—Results of special serum agglutination procedures.

These reports all emphasize that brucellar pyelonephritis is clinically and histologically indistinguishable from renal tuberculosis. It appears quite likely, therefore, that cases of presumed tuberculosis of the urinary tract in which acid-fast organisms are absent might well be brucellosis. Weed and associates,[8] by careful cultural studies of surgically excised tissues, have conclusively demonstrated the importance of Brucella organisms in the etiology of many chronic granulomatous infections, not only of the urinary tract but also of bones, joints, bursae, lungs, lymph nodes, prostate, epididymides, and fallopian tubes. They found that in such lesions, despite a histological diagnosis of tuberculosis, acid-fast bacilli could be cultured in only 55%; the remainder of these lesions were caused by Brucella, the various fungi, or Salmonella typhosa. These studies clearly show the necessity for precise bacteriology in establishing the correct etiology.

A precise bacteriological etiology is also of prime importance in selecting the proper therapy. The four patients with brucellar pyelonephritis and cystitis reported since the advent of antibiotics all responded promptly to specific antibiotic therapy. The patient in the case recorded here, however, had such severe destruction of the kidney that excision was indicated. Other unusual features in this patient include the presence of blocking antibiotics and caseation. Absence of Brucella agglutinins in the serum in culturally proved brucellosis has not occurred in our experience, although we have studied another patient with blocking antibodies. Hall and Manion[9] have discussed this phenomenon in detail. Weed and associates[4] report negative agglutination reactions in three of their patients with localized brucellar infections; however, no tests for the blocking phenomenon were reported. Caseation in human brucellosis is rare. Weed and associates[4] described five patients with caseous necrosis, similar to that seen in tuberculosis. An example of frank caseation of a lymph node due to Br. suis is reported by Crow and others.[10] These authors also stress that the granulomatous reaction, with or without caseation, is not a specific reaction to Mycobacterium tuberculosis but may occur in brucellosis, syphilis, tularemia, malignancies, the mycoses, sarcoidosis, and lipid pneumonia.

It is quite apparent that a chronic localized granulomatous infection is not necessarily tuberculous, as is often assumed. Careful bacteriological study must be done to determine the specific etiological agent. The foregoing case report again emphasizes that, in the search for the etiological agent, the index of suspicion for brucellosis should be high.

SUMMARY

In a case of chronic caseous calcific pyelonephritis with cystitis caused by Brucella suis, histopathological studies of an excised kidney revealed an extensive granulomatous reaction, indistinguishable from tuberculosis.

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[3] Clark, A. L.: Urinary Tract Infections Accompanying Brucellosis, J. Urol. **42**: 249-256 (Aug.) 1939.

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[5] Greene, L. F.; Weed, L. A., and Albers, D. D.: Brucellosis of Urinary Tract, J. Urol. **67**: 765-772 (May) 1952.

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[7] Bucco, G.: Contributo clinico-sperimentale allo studio delle alterazioni renali nelle brucellosi, Riforma med. **50**: 1490-1497 (Sept. 29) 1934.

[8] Weed, L. A.: Bacteriologic Examination of Tissue, Surg., Gynec. & Obst. **95**: 519-521 (Oct.) 1952. Weed and others.[4]

[9] Hall, W. H., and Manion, R. E.: Comparison of Coombs Test with Other Methods for Brucella Agglutinins in Human Serum, J. Clin. Invest. **32**: 96-106 (Jan.) 1953.

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Blocking Brucella antibodies were present in the serum. Since histopathological study cannot distinguish between tuberculosis, brucellosis, the mycoses, or typhoid fever, precise cultural studies of chronic localized granulomatous lesions are necessary. The case reported here and other examples from the literature emphasize the importance of a high index of suspicion for brucellosis in such lesions.

ADDENDUM

A recent review of Brucella infections of the genitourinary tract has appeared since this manuscript was submitted for publication.[11]

412 Union St. S. E. (14) (Dr. Abernathy).

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COUNCIL ON PHARMACY AND CHEMISTRY

Report to the Council

The Council on Pharmacy and Chemistry has authorized publication of the following report.

H. D. Kautz, M.D., *Secretary.*

The persistently large number of accidental poisonings that are reported annually has focused medical attention on the causes and possible remedies for this situation, especially as it relates to children. It is generally agreed that the curiosity of children coupled with the casualness with which many parents handle and store drugs and chemicals are predisposing factors to most unintentional poisonings. Unhappily, agreement has not been obtained in all quarters on corrective measures. The following report has been adopted by the Committee on Toxicology as expressing its attitude on this perennial problem.

Bernard E. Conley, *Secretary*
Committee on Toxicology.

THE PROBLEM OF ACCIDENTAL POISONING IN CHILDREN AS IT EXISTS TODAY

Jay M. Arena, M.D., Durham, N. C.

Of approximately 14,000 accidental deaths that occur each year in children from 1 to 14 years of age, almost 1,500 are reported as being caused by the accidental ingestion of a poison, but this figure is far from correct. Each year many infants and small children die from poisoning, and the correct diagnosis is never made nor tabulated on a death certificate or statistical chart. As many of the present toxic agents affect the central nervous system, causing convulsions, the diagnosis is often classified as encephalitis if there is no history of ingestion of toxic substances. This erroneous diagnosis is being made in the best of hospitals.

The alarming feature of this problem, however, is the regularity with which various household agents and drugs are ingested by children. Every day many physicians receive an emergency call from a frantic mother stating that her child has ingested some poisonous substance. This is understandable, however, when one realizes what the usual household contains today as compared to the agents children had to be wary of 20 to 30 years ago. We now have deodorants, depilatories, detergents, herbicides, insecticides, rodenticides, stimulants, sedatives, analgesics, and so forth.

An analysis of 502 cases of accidental poisoning in children under the age of 12 years, seen at the Royal Hospital for Sick Children, Edinburgh, Scotland, showed that a tenfold increase in such cases occurred between 1931 and 1951.[1] In 1931 there were 5 cases annually; in 1951 there were more than 50. The causative agents were classified as follows: group 1, household substances, such as disinfectants, fuels, cleaning agents, and insecticides, 203; group 2, medicines, including those intended for internal use, such as camphor, barbiturates, iron, and salicylates, 185, and those intended for external use, such as liniments and nose and eye drops, 75; group 3, vegetable matter, such as seeds and berries, 35; and group 4, source unidentified, 4. Throughout the period covered by the investigation, the number of cases caused by household substances increased steadily, but after 1948 the number caused by drugs rose sharply because of increased prescribing under the National Health Service. More than half the cases (331) occurred in children between the ages of 1 and 3 years and only 38 in children over 5 years of age.

Dr. Katherine Bain [2] of the United States Children's Bureau has recently shown that the number of deaths from ingestion of poisons in children under 5 years of age is four times higher in the United States than in Britain. Inasmuch as most of the death rates in the United States and Great Britain are generally comparable, it was felt such a great difference in the specific rate by accidental poisoning should be carefully analyzed and publicized to encourage attempts to determine the cause and promote preventive measures (see figure).

Foodstuffs are no longer a common source of poisoning. Only eight deaths resulted from this cause in the two years under investigation, and these were attributed to such substances as wild berries, toad stools, and green pecans. Slightly less than a third of the deaths were caused by drugs or medicaments. A little more than a third were caused by general household items such as bleaching agents, furniture polish, and moth balls. A quarter were caused by petroleum products, principally kerosene. Five per cent of the deaths resulting from poisoning in the home were unclassifiable because of insufficient data on the death certificates.

Some of the drug poisoning in small children is a result of overdosing, but a great deal of it is like any other household poisoning—the child simply swallows something he has found. The most common drug offender in

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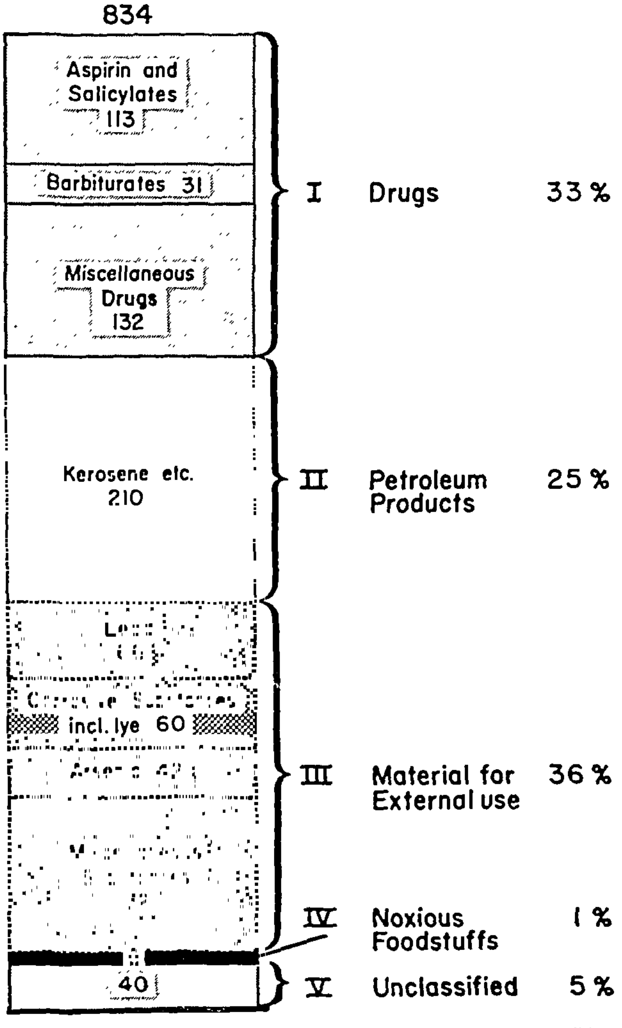
Associate Professor of Pediatrics, Duke University, and Director, Poison Control Center of Durham.

[1] Craig, J. O., and Fraser, M. S.: Accidental Poisoning in Childhood, Arch. Dis. Childhood 28: 259-267 (Aug.) 1953.

[2] Bain, K.: Death Due to Accidental Poisoning in Young Children, J. Pediat. 44: 616-623 (June) 1954.

this age group is aspirin, as evidenced by previous Committee on Toxicology reports on this subject.[3] The flavoring of aspirin tablets for children has been associated with an alarming increase in the incidence of accidental poisoning. The flavoring has improved the taste and palatability to the extent that some children will go out of their way to search for it just as they may do for candy.

The American people spend a great deal of money on drugs. In 1951 the public spent about three-fourths of a billion dollars on prescriptions and a full billion dollars on packaged medicaments, of which $135 million went for aspirin and analgesics. This widespread distribution suggests that practically every household has such medicaments available. Too frequently adults assume that these drugs are harmless and leave them where young children can easily reach them.



Substances responsible for death from accidental poisoning of children under 5 years of age: United States, 1949 and 1950.

Childhood deaths from poisoning occur disproportionately often in 12 southern states—Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. The rate for these states as a group is 4.09 per 100,000 population as against 2.00 for the remainder of the country. For the barbiturates and aspirin there is little regional difference, but for corrosives and arsenic the rate for these southern states is six times that for the rest of the country and the rate for petroleum products (principally kerosene) is four times as high.

SOLUTION TO THE PROBLEM

The solution to this problem is manifold and complex. There are at least four methods that hold promise and should be investigated and employed wherever applicable: (1) education, (2) more stringent laws, (3) the establishment of poison centers, and (4) greater effort by physicians on the local level.

Education.—Quite apparent to everyone is the need for educating laymen and parents to the dangers that household agents may present; however, many physicians are unaware of these dangers, and they also must be educated. Manufacturers of these products must be made aware of the seriousness of the problem and their responsibilities. They should contemplate the use of distinctive safety containers, better labeling with precautionary statements, and, when indicated, uniformly standardized doses of drugs. For example, the use of a standard strength of 1.25 grains (75 mg.) for children's aspirin tablets would be a great step forward in diminishing the incidence of aspirin poisoning.

More Stringent Federal and State Laws.—The Federal Caustic Poison Act enforced by the Food and Drug Administration requires that the word "Poison" and an acceptable antidote be placed prominently on the label of a household package of a preparation that contains more than a specified amount of any one of 12 specific caustics or corrosives. The Federal Food, Drug and Cosmetic Act, also enforced by the Food and Drug Administration, does not require the use of the poison legend on any drug preparation.

The Federal Insecticide, Fungicide, and Rodenticide Act of 1947, enforced by the Department of Agriculture, requires that certain white economic poisons be colored and requires that the labels of economic poisons toxic to man bear the skull and crossbones and the word "Poison" prominently in red on a background of contrasting color with a statement of the antidote. These Federal Acts are useful as far as they go; however, they are far from adequate.

On April 14, 1954, the Department of Health, Education and Welfare (Food and Drug Administration) sent out the following memorandum: "To minimize accidental poisonings by oil of wintergreen preparations (methyl salicylate), products containing more than 5% of this ingredient will be considered as misbranded unless their labels warn that use contrary to directions may be dangerous and that the article should be kept out of reach of children to prevent accidental poisoning."

This is a step in the right direction. Other preparations such as camphorated oil (containing 20% camphor) should also be included and so labeled. Legislation should be considered to provide regulation of the sale of household articles not now covered by existing statutes to remove the risk from accidental ingestion and misuse of such preparations, especially by children, and to provide informative labeling. In the absence of federal legislation to safeguard distribution of household articles, such as kerosene and other petroleum distillates that are serious offenders, consideration could be given to enactment of such legislation so as to protect the public. In addition, physicians and lay groups should work for appropriate state laws to strengthen the federal laws and to bring about correction of their special problems as found within a state. In this connection, consideration could be given to a law restricting the sale of kerosene other than in a special container, which would prohibit the use of any other type of container. In addition, such containers should bear informative warnings as to the poisonous and combustible properties of kerosene and like substances. A suggested caution label is as follows:

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[3] Precautions Regarding Salicylates, Including Aspirin, report of Committee on Toxicology to the Council on Pharmacy and Chemistry, J. A. M. A. 158:831 (July 9) 1955. Candy Medication and Accidental Poisoning, report of Committee on Toxicology to the Council on Pharmacy and Chemistry, ibid. 158:44 (May 7) 1955.

> WARNING
>
> Kerosene is inflammable and may produce dangerous explosions.
>
> If it is swallowed, it may cause fatal damage to the lungs. It should be kept out of the reach of children and should never be put in beverage bottles, glasses, or cups or left in unlabeled containers.

Poison Centers.—Another approach to the problem would be the establishment of a network of poisoning control centers throughout the country. The pattern for these centers could be similar to that developed in Chicago by a committee of the Illinois Academy of Pediatrics with Dr. Edward Press as chairman. The organization and functioning of these centers would vary in accordance with the individual situation and facilities in each of the cities. It would be hoped, however, that the information pertaining to the type, incidence, treatment, and preventive measures for such poisoning developed in each center could be correlated and made available to all other centers and to all other persons throughout the country involved in a sound program of prevention and treatment of poisoning.

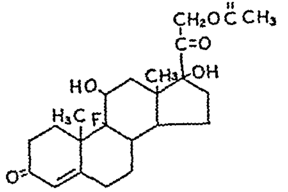
Cooperation of Physicians.—Another step forward would be a concentrated effort by every physician on the local level to educate parents to the hazards of poisons and other dangerous substances found in and about the home. This can be done by pointing out corrective measures while making home calls, by passing out and insisting that mothers read child safety booklets, and by using a bulletin board in the office to highlight accidents and poisonings that occur in the community each week. It is also advisable to obtain wider public health education through encouragement of community programs to study the local problems of poisonings and to make available such information through public service mediums such as newspapers, magazines, radio, films, speeches, and displays. Lastly, much can be accomplished by getting the cooperation of the pharmacists in putting a label such as "Keep out of the hands of children" on all dangerous drugs and agents.

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

H. D. KAUTZ, M.D., *Secretary.*

Fludrocortisone Acetate. — $C_{23}H_{31}FO_6$. — M.W. 422.50. — 9α-fluoro-17-hydroxycorticosterone-21-acetate.—The structural formula of fludrocortisone acetate may be represented as follows:



Actions and Uses.—Fludrocortisone acetate, a derivative of hydrocortisone acetate, has the same qualitative actions. It usually appears to be effective in smaller doses than required with hydrocortisone and shares with hydrocortisone the same relative freedom from untoward local effects. Thus, at its effective dosage level of anti-inflammatory action, fludrocortisone can be considered to have the same ratio of therapeutic to untoward effects as hydrocortisone.

Fludrocortisone acetate is effective topically for the local management of allergic dermatoses, such as contact dermatitis and atopic dermatitis (including allergic eczema, disseminated neurodermatitis, and eczematoid dermatitis), seborrheic dermatitis, pruritus with lichenification, and nonspecific anogenital pruritus. Although systemic effects following the topical application of fludrocortisone are very rare, retention of sodium and subsequent edema may occur. Local irritation and sensitivity reactions have not been attributed to its topical use, but patients should be observed carefully for such reactions, particularly with respect to the nonactive components of the vehicle employed.

The systemic usefulness of fludrocortisone is under clinical investigation and has not yet been established.

Dosage.—A concentration of 0.05 to 0.25% fludrocortisone acetate is administered topically in a suitable dermatological ointment or lotion. A small quantity of either ointment or lotion is applied to the involved area two to four times daily. Unduly vigorous massage that may damage the skin should be avoided. Careful cleansing prior to application is essential to minimize the possibility of introducing infection.

Sharp & Dohme, Division of Merck & Co., Inc., and E. R. Squibb & Sons, Division of Olin Mathieson Chemical Corporation, cooperated by furnishing scientific data to aid in the evaluation of fludrocortisone acetate.

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REHABILITATION

Rehabilitation may be defined as the process of assisting the handicapped person to realize his potentialities and goals physically, mentally, socially, and economically.[1] The growing need for rehabilitative facilities is the direct result of the enormous increase in traumatic injuries and the increase in chronic degenerative diseases in our aging population. It is estimated that at least 2 million persons in the United States have disabilities requiring vocational rehabilitative services.[2] This does not include persons with minor disabilities, older persons, and other groups who could benefit from rehabilitation. Although most authorities believe that rehabilitative facilities should be developed in large hospital centers, Cambridge, Mass., solved its problem not by organizing a center but by employing a rehabilitation coordinator to guide patients to and assure better use of existing local and state facilities.[3] This procedure assumes the availability of adequate facilities. Although a number of the smaller hospitals that cannot provide a comprehensive integrated rehabilitative service have used this approach with some success, it does not solve the problem of the separate services required by severely disabled persons. Where rehabilitation centers have been established, they find it necessary to provide physiatrists; physical therapists; occupational therapists; speech and hearing therapists; clinical psychologists; nurses; a prosthetic service; vocational evaluation, counselling, and training service; social service; and a therapeutic recreation service.

The greatest need of many patients is motivation, and this is greatly aided by convincing the patient that he can regain or compensate for much of his lost power. This must be done early in the course of his treatment before he becomes unduly discouraged or develops an attitude of dependency. According to Rusk[4] the aim of rehabilitation is to train the patient to live within the limits of his disability but to the hilt of his capacity. That capacity often surprises the patient, the doctor, and all beholders. Rehabilitative measures are particulary applicable to patients with poliomyelitis, spinal cord injury, cerebral palsy, various forms of arthritis, speech disorders, amputations, and cerebral vascular accidents.[5] Hospitalized patients who receive the benefit of rehabilitative measures recover more promptly and thus reduce their stay in the hospital. Furthermore, it has been shown that the readmission rate for such patients is lower than that for those who do not have this type of treatment, and even those whose condition is such that they will require prolonged hospitalization can be helped to a degree of self-care that will greatly reduce the nursing burden.[6] Since few persons want to be a burden on others, this not only helps the hospital staff but greatly improves the morale of the patient.

The suddenly disabled patient may be difficult to treat. Resentful of his disability, he may vent his resentment on those nearest him who are trying to help him. The physician and therapist must understand this resentment and not take it as a personal affront, for to do so would make effective therapy almost impossible.[7] Those who treat these patients must also guard against a feeling of hostility toward those patients for whom they can do relatively little. Although it is frustrating to treat a patient and not see any progress day after day, a feeling of resentment toward the patient will vitiate the only hope the patient has of achieving some fraction of his former independence. The bright side of the picture is the achievement of rehabilitation where treatment has been vigorously applied. In 1954, under the National Vocational Rehabilitation Program about 60,000 persons were returned to employment, and under the greatly expanded Federal-State Vocational Rehabilitation Program there is an objective of 200,000 persons rehabilitated annually by 1959. It has been shown that the accident rate in disabled employees is lower than that in their fellow workers; disabled workers maintain a better production record and have less absenteeism; and, often, due to the loss of a limb or a sense, a much greater than average skill in other limbs or senses is developed as a compensatory measure—this sharpened skill adds to the employee's value to his employer.

Physical and mental inactivity are not good for anyone. People who have made fun of basket weaving should realize that occupational therapy has come a long way since basket weaving was its mainstay, but they should also realize that the chief value of even such measures as basket weaving is to give the patient confidence in his ability to perform manual tasks.[8] Although rehabilitation is admittedly expensive, it has been shown to pay dividends far exceeding its cost. The need for more facilities is urgent, and the chief reason that they are not being developed more rapidly is that many persons responsible for the care and support of the chronically disabled have only a vague idea of what rehabilitative services can do.[2]

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SPONTANEOUS RUPTURE OF THE ESOPHAGUS

Spontaneous rupture of normal esophagus is a rare occurrence. The celebrated Dutch clinician Boerhaave gave the first and remarkably accurate description of it in 1724. The patient was "the illustrious Baron Wassenaer, Lord High Admiral to the Republick, [who] after intense straining and vomiting broke asunder the tube of the esophagus, near the diaphragm, so that after the most excruciating pains the aliments which he swallowed passed, together with the air, into the cavity of the thorax, and he expired in 24 hours." [1]

Walker [2] in 1914 reported one case, the first of the four reported in literature in which diagnosis was made before death. He was able to find only 22 cases of spontaneous rupture of the esophagus reported in the literature. Ridgway and Duncan [3] in 1937 culled 35 cases from literature. Eliason and Welty [4] described in 1946 three cases in which the diagnosis was made post mortem. They stated that the mortality in spontaneous rupture of the esophagus so far reported was 100% and that most patients succumbed within 24 hours.

Kinsella [5] stresses that the clinical picture of spontaneous rupture of the esophagus is not generally recognized despite the fact that its symptoms are quite characteristic. Rupture of the esophagus usually occurs during an episode of vomiting, often preceded by a bout of drinking or a heavy meal. The pain radiates to the back or to the interscapular region; it is most excruciating and is not relieved by morphine. There develop collapse, shock, dyspnea, and cyanosis. In 60 to 70% of the cases there appears emphysema of the tissues at the base of the neck. There is frequently rigidity of the upper part of the abdomen. As the case progresses signs of hydropneumothorax may be elicited, with fluid level on one or both sides, more frequently on the left. There may be evident displacement of the heart and mediastinal structures. Mackler [6] considers the triad of vomiting, low thoracic pain, and emphysema of the neck as diagnostic of the condition. The presence of gastric contents in aspirated pleural fluid is pathognomonic. Iodized oil (Lipiodol) swallow may also confirm the diagnosis. X-ray examination is of the greatest value. The films may reveal emphysema of the mediastinum, a fluid level in the mediastinum, or a pneumothorax. The lesion most frequently suspected is perforated peptic ulcer. Other conditions to be ruled out in the differential diagnosis are acute coronary occlusion, acute pancreatitis, spontaneous pneumothorax, dissecting aneurysm of the aorta, and pulmonary embolism.

The question of why the normal esophagus ruptures has not been definitely elucidated. Most observers feel that the important factor is a great increase of pressure within it. A sudden increase is probably more important than the total degree of pressure. The esophagus ruptures at its lower end, 1 or 2 in. above the diaphragm. This appears to be its weakest portion, as demonstrated in experiments by Weiss and Mallory [7] and by Mackler.[6] Mackler inflated the esophagus in 65 fresh human cadavers. The rupture occurred in all instances at the lower extremity of the organ upon its left lateral wall. The site and configuration of the resulting rupture duplicated the clinical lesion.

Barrett [8] of London reported in 1947 the first case in which operation was successfully done in spontaneous perforation of the esophagus. Olsen and Clagett [9] likewise reported in 1947 an instance of spontaneous rupture of the esophagus immediately diagnosed and successfully operated on by transthoracic repair of the torn esophagus. Samson [10] reported two cases of postemetic rupture of the esophagus in which the diagnosis was made early, the resuscitation was intensive, and thoracotomy with direct repair of the esophageal tear resulted in prompt recovery. He emphasizes that the signs and symptoms of rupture of the esophagus are practically pathognomonic and not difficult to recognize if the lesion is kept in mind. The essentials of treatment consist of rapid resuscitation, thoracotomy with definitive repair of the esophageal tear, and drainage of the mediastinum. It is reasonable to believe that with early diagnosis and early repair of the rupture, aided by antibiotics and supportive measures, the mortality rate from this hitherto catastrophic event will be greatly decreased.

LYE POISONING

A report to the Committee on Toxicology in this issue (page 1537) points out that the rate for fatal poisoning in children by certain nonmedical chemicals in the South is several times that for the rest of the country. Lye and kerosene poisoning are among the most common causes of injury in this age group.

In a recent discussion of this sectional problem before the Committee on Toxicology, it was pointed out that in one southern state about 150 cases of lye poisoning occur each year, with six to eight deaths annually. Eighty-five per cent of the cases occur among poor and illiterate persons who use lye because of its inexpensiveness and potency as a cleanser. It was further suggested that use in the home would be discouraged if the sale of lye in small containers were banned. While it is generally recognized that decreasing access to a poison reduces the frequency of injury, no general agreement has been obtained on this prohibition. Agitation to explore the legal aspects of this proposal has obtained support in areas where the problem of lye poisoning is most acute.

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Rehabilitation may be defined as the process of assisting the handicapped person to realize his potentialities and goals physically, mentally, socially, and economically.[1] The growing need for rehabilitative facilities is the direct result of the enormous increase in traumatic injuries and the increase in chronic degenerative diseases in our aging population. It is estimated that at least 2 million persons in the United States have disabilities requiring vocational rehabilitative services.[2] This does not include persons with minor disabilities, older persons, and other groups who could benefit from rehabilitation. Although most authorities believe that rehabilitative facilities should be developed in large hospital centers, Cambridge, Mass., solved its problem not by organizing a center but by employing a rehabilitation coordinator to guide patients to and assure better use of existing local and state facilities.[3] This procedure assumes the availability of adequate facilities. Although a number of the smaller hospitals that cannot provide a comprehensive integrated rehabilitative service have used this approach with some success, it does not solve the problem of the separate services required by severely disabled persons. Where rehabilitation centers have been established, they find it necessary to provide physiatrists; physical therapists; occupational therapists; speech and hearing therapists; clinical psychologists; nurses; a prosthetic service; vocational evaluation, counselling, and training service; social service; and a therapeutic recreation service.

The greatest need of many patients is motivation, and this is greatly aided by convincing the patient that he can regain or compensate for much of his lost power. This must be done early in the course of his treatment before he becomes unduly discouraged or develops an attitude of dependency. According to Rusk[4] the aim of rehabilitation is to train the patient to live within the limits of his disability but to the hilt of his capacity. That capacity often surprises the patient, the doctor, and all beholders. Rehabilitative measures are particulary applicable to patients with poliomyelitis, spinal cord injury, cerebral palsy, various forms of arthritis, speech disorders, amputations, and cerebral vascular accidents.[5] Hospitalized patients who receive the benefit of rehabilitative measures recover more promptly and thus reduce their stay in the hospital. Furthermore, it has been shown that the readmission rate for such patients is lower than that for those who do not have this type of treatment, and even those whose condition is such that they will require prolonged hospitalization can be helped to a degree of self-care that will greatly reduce the nursing burden.[6] Since few persons want to be a burden on others, this not only helps the hospital staff but greatly improves the morale of the patient.

The suddenly disabled patient may be difficult to treat. Resentful of his disability, he may vent his resentment on those nearest him who are trying to help him. The physician and therapist must understand this resentment and not take it as a personal affront, for to do so would make effective therapy almost impossible.[7] Those who treat these patients must also guard against a feeling of hostility toward those patients for whom they can do relatively little. Although it is frustrating to treat a patient and not see any progress day after day, a feeling of resentment toward the patient will vitiate the only hope the patient has of achieving some fraction of his former independence. The bright side of the picture is the achievement of rehabilitation where treatment has been vigorously applied. In 1954, under the National Vocational Rehabilitation Program about 60,000 persons were returned to employment, and under the greatly expanded Federal-State Vocational Rehabilitation Program there is an objective of 200,000 persons rehabilitated annually by 1959. It has been shown that the accident rate in disabled employees is lower than that in their fellow workers; disabled workers maintain a better production record and have less absenteeism; and, often, due to the loss of a limb or a sense, a much greater than average skill in other limbs or senses is developed as a compensatory measure—this sharpened skill adds to the employee's value to his employer.

Physical and mental inactivity are not good for anyone. People who have made fun of basket weaving should realize that occupational therapy has come a long way since basket weaving was its mainstay, but they should also realize that the chief value of even such measures as basket weaving is to give the patient confidence in his ability to perform manual tasks.[8] Although rehabilitation is admittedly expensive, it has been shown to pay dividends far exceeding its cost. The need for more facilities is urgent, and the chief reason that they are not being developed more rapidly is that many persons responsible for the care and support of the chronically disabled have only a vague idea of what rehabilitative services can do.[2]

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SPONTANEOUS RUPTURE OF THE ESOPHAGUS

Spontaneous rupture of normal esophagus is a rare occurrence. The celebrated Dutch clinician Boerhaave gave the first and remarkably accurate description of it in 1724. The patient was "the illustrious Baron Wassenaer, Lord High Admiral to the Republick, [who] after intense straining and vomiting broke asunder the tube of the esophagus, near the diaphragm, so that after the most excruciating pains the aliments which he swallowed passed, together with the air, into the cavity of the thorax, and he expired in 24 hours." [1]

Walker [2] in 1914 reported one case, the first of the four reported in literature in which diagnosis was made before death. He was able to find only 22 cases of spontaneous rupture of the esophagus reported in the literature. Ridgway and Duncan [3] in 1937 culled 35 cases from literature. Eliason and Welty [4] described in 1946 three cases in which the diagnosis was made post mortem. They stated that the mortality in spontaneous rupture of the esophagus so far reported was 100% and that most patients succumbed within 24 hours.

Kinsella [5] stresses that the clinical picture of spontaneous rupture of the esophagus is not generally recognized despite the fact that its symptoms are quite characteristic. Rupture of the esophagus usually occurs during an episode of vomiting, often preceded by a bout of drinking or a heavy meal. The pain radiates to the back or to the interscapular region; it is most excruciating and is not relieved by morphine. There develop collapse, shock, dyspnea, and cyanosis. In 60 to 70% of the cases there appears emphysema of the tissues at the base of the neck. There is frequently rigidity of the upper part of the abdomen. As the case progresses signs of hydropneumothorax may be elicited, with fluid level on one or both sides, more frequently on the left. There may be evident displacement of the heart and mediastinal structures. Mackler [6] considers the triad of vomiting, low thoracic pain, and emphysema of the neck as diagnostic of the condition. The presence of gastric contents in aspirated pleural fluid is pathognomonic. Iodized oil (Lipiodol) swallow may also confirm the diagnosis. X-ray examination is of the greatest value. The films may reveal emphysema of the mediastinum, a fluid level in the mediastinum, or a pneumothorax. The lesion most frequently suspected is perforated peptic ulcer. Other conditions to be ruled out in the differential diagnosis are acute coronary occlusion, acute pancreatitis, spontaneous pneumothorax, dissecting aneurysm of the aorta, and pulmonary embolism.

The question of why the normal esophagus ruptures has not been definitely elucidated. Most observers feel that the important factor is a great increase of pressure within it. A sudden increase is probably more important than the total degree of pressure. The esophagus ruptures at its lower end, 1 or 2 in. above the diaphragm. This appears to be its weakest portion, as demonstrated in experiments by Weiss and Mallory [7] and by Mackler.[6] Mackler inflated the esophagus in 65 fresh human cadavers. The rupture occurred in all instances at the lower extremity of the organ upon its left lateral wall. The site and configuration of the resulting rupture duplicated the clinical lesion.

Barrett [8] of London reported in 1947 the first case in which operation was successfully done in spontaneous perforation of the esophagus. Olsen and Clagett [9] likewise reported in 1947 an instance of spontaneous rupture of the esophagus immediately diagnosed and successfully operated on by transthoracic repair of the torn esophagus. Samson [10] reported two cases of postemetic rupture of the esophagus in which the diagnosis was made early, the resuscitation was intensive, and thoracotomy with direct repair of the esophageal tear resulted in prompt recovery. He emphasizes that the signs and symptoms of rupture of the esophagus are practically pathognomonic and not difficult to recognize if the lesion is kept in mind. The essentials of treatment consist of rapid resuscitation, thoracotomy with definitive repair of the esophageal tear, and drainage of the mediastinum. It is reasonable to believe that with early diagnosis and early repair of the rupture, aided by antibiotics and supportive measures, the mortality rate from this hitherto catastrophic event will be greatly decreased.

LYE POISONING

A report to the Committee on Toxicology in this issue (page 1537) points out that the rate for fatal poisoning in children by certain nonmedical chemicals in the South is several times that for the rest of the country. Lye and kerosene poisoning are among the most common causes of injury in this age group.

In a recent discussion of this sectional problem before the Committee on Toxicology, it was pointed out that in one southern state about 150 cases of lye poisoning occur each year, with six to eight deaths annually. Eighty-five per cent of the cases occur among poor and illiterate persons who use lye because of its inexpensiveness and potency as a cleanser. It was further suggested that use in the home would be discouraged if the sale of lye in small containers were banned. While it is generally recognized that decreasing access to a poison reduces the frequency of injury, no general agreement has been obtained on this prohibition. Agitation to explore the legal aspects of this proposal has obtained support in areas where the problem of lye poisoning is most acute.

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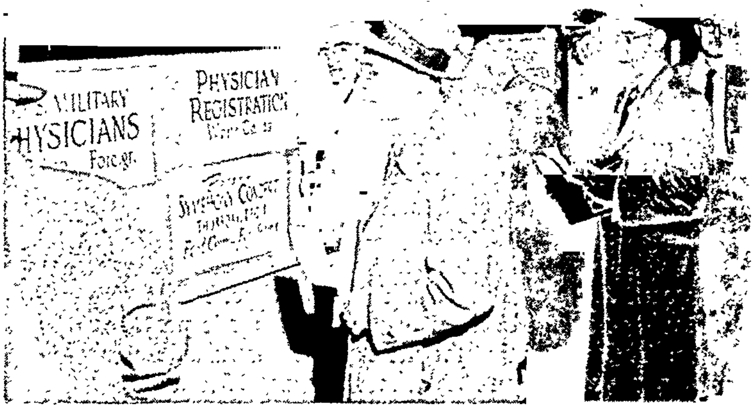
BOSTON MEETING

Right, hundreds of physicians registered in opening hours of the session in Mechanics Hall to view exhibits and attend discussions, motion pictures, and color television presentations.



Below, at Medical Public Relations Conference, Sen. Wallace F. Bennett of Utah gave an address on "Is Free Enterprise Here to Stay?" He was welcomed to the conference by A. M. A. President Elmer Hess (left).

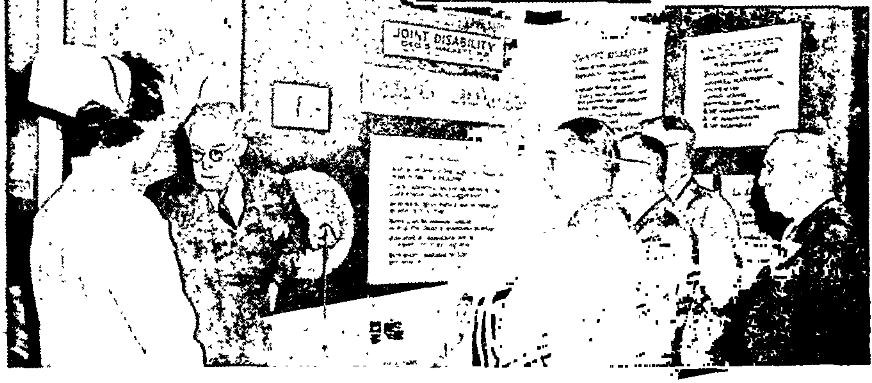
Below, Medical Society Executives Conference met for a New England shore dinner at the Harvard Club. Lester H. Perry (left), executive secretary, Pennsylvania Medical Society, and M. C. Smith, executive secretary, Nebraska State Medical Association, whet their appetites while appraising the lobsters. The dinner climaxed a full day's program at the Parker House.

Below, at Hawaiian booth in Mechanics Hall, Dr. William G. Richtmyer, Albany, N. Y., thought a trip to the centennial meeting of the Hawaiian Medical Association in Honolulu April 22-29 a good idea when told about it by B. J. Feldman (left) and Margaret Brumaghin, both of Hawaii Airlines, Honolulu.

Below, Boston vied for attention among visitors to the Clinical Meeting. Here, Dr. and Mrs. Fred Humphrey, Fort Collins, Colo., plan their sightseeing itinerary with the Statler tour agent.

Left, after the announcement of his selection as 1955 General Practitioner of the Year, Dr. E. Roger Samuel, Mount Carmel, Pa., was interviewed, photographed, and filmed by members of the press at a news conference.

One of the most popular special features of each meeting is the demonstration on fractures. Right, Drs. M. J. Giannestras, Cincinnati; Franklin V. Wade, Flint, Mich.; and William Lannigan, Boston (left to right), apply a traction device in the Scientific Exhibit.



Left, Dr. G. S. Hackett's demonstration of treatment of "low back pain" brought a large audience to his exhibit.

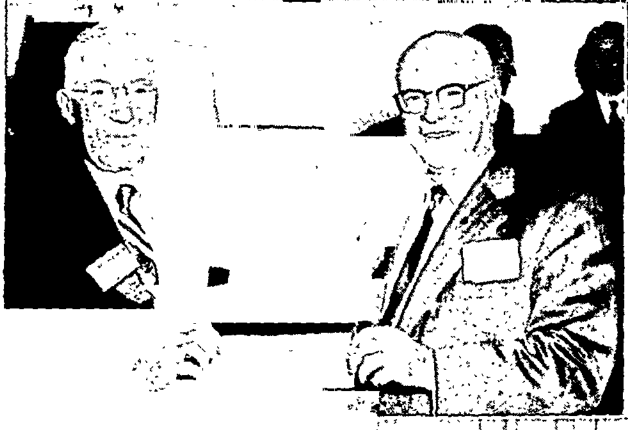
Below, push-button device in National Tuberculosis Association exhibit was one of the many interesting features.

Below, what is new in hydrotherapeutic tanks was demonstrated by Ralph E. Worden.

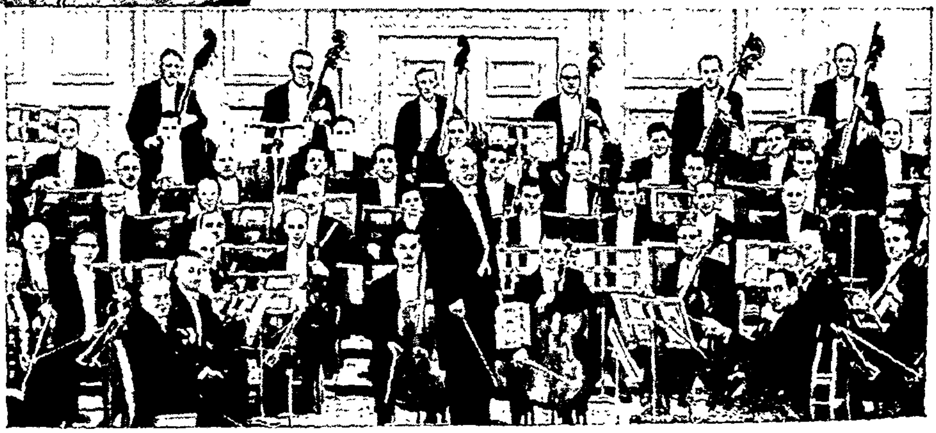
After reference committees discussed resolutions presented to the House of Delegates, their reports were heard by the House. In session here is the Reference Committee on Insurance and Medical Service.

V. C. Royster, senior associate editor of the Wall Street Journal, New York, spoke on "The Doctor's Future in America" at the eighth Medical Public Relations Conference.

Erle Cocke Jr. (left), vice president of Delta Airlines; Leonard E. Read, president, Foundation for Economic Education; and U. S. Congressman Thomas B. Curtis, Missouri, were guest speakers at the Medical Public *Relations Conference* and were *greeted by* A. M. A. President-Elect Dwight H. Murray (second from left).



Left, California Medical *Association* was the donor of a $25,000 check to the American Medical Education Foundation. Dr. Louis H. Bauer (left), president of the AMEF board of directors, accepted the gift from Dr. Donald Cass of the California delegation.



Dr. Charles Munch, conductor of the Boston Symphony, lead the orchestra in a special concert for physicians and their families.

ORGANIZATION SECTION

PRESIDENT'S MID-YEAR REPORT

Since we last met in June at Atlantic City, I have traveled nearly 30,000 miles and talked to scores of audiences as your President. It is my pleasure at this time to report on some of the things which have happened in our organization and some of the things I have seen and heard throughout the United States. In all of my talks and radio, television and press interviews during the past few months I have tried to prove worthy of the trust which this House of Delegates has placed in me. There is one basic truth I've tried to drive home repeatedly—that doctors take care of sick folks, period. I have told my audiences that medicine can become a racket if other considerations are put ahead of that one simple humanitarian service to which we are all pledged.

From personal observation around the country I am satisfied that we are making good progress in informing the public and the profession of our objectives. We have also attempted to show in tangible ways the seriousness of our purpose. We must now intensify our educational program and increase our list of tangible accomplishments for the health benefit of the public. Complacency should be regarded as our greatest enemy. It would be presumptuous of me to attempt a detailed report of the many worthwhile activities engaged in by the various councils, committees and departments of your American Medical Association. These reports were splendidly presented in the Oct. 29 issue of THE JOURNAL on pages 878 to 947. I regret only that I do not have the power to make this "Officers Reports" section compulsory reading for every physician member in the United States. Here are the answers to the countless questions they have about "what is the A. M. A. doing?" It is inexcusable for the membership to be uninformed when the material is handed to them virtually on a silver platter.

For example, I would like to highlight some of the work being done by the Law Department, which was created in August, 1954, as a successor to the Bureau of Legal Medicine and Legislation. An effective liaison has been established between the department and the various councils and committees so that legal assistance is available on a day-to-day basis. Two very important studies have been launched by the department. One is to ascertain which states have established panels of experts to provide medical testimony in personal injury cases and in suits involving professional liability. The other is an extensive survey dealing with professional liability. During the month of October, the department sponsored, in cooperation with the Committee on Medicolegal Problems, three highly successful Medicolegal Symposiums in Chicago, Omaha and New York City. These meetings were attended by both physicians and attorneys. It is hoped that similar meetings can be arranged in the future in cooperation with the American Bar Association. Having attended the Chicago symposium, I might say that I am convinced such joint meetings will be most effective in promoting harmony between the two professions and assuring the proper administration of justice in medicolegal cases.

Let's, for a moment, look at the Council on Medical Service. As a past member and chairman I have a more intimate knowledge of its activities. Currently the group is engaged in upwards of 60 different projects. In the past few months it has given individual service to more than 3,700 physicians, communities, civic organizations and firms through its Physician Placement Program, in cooperation with 39 state medical associations. During the same period, the Council completed a review of the Hospital Construction Act, organized a Committee on Geriatrics, formulated guides on indigent care plans in cooperation with other groups, drew up principles for evaluating management and union health centers, surveyed physician attitudes on voluntary health insurance programs and prepared 10 new publications.

At a meeting in Chicago a couple of weeks ago, the Council on Mental Health brought together representatives of more than 40 state medical associations for a discussion of ways to improve the care of those unfortunates who are affected by mental and emotional disturbances. The activities of this Council are growing rapidly and are now bearing fruit. Along with the American Psychiatric Association the Council on Mental Health spearheaded development of the recently formed Joint Commission on Mental Illness and Health. This Commission will carry out a nationwide analysis and reevaluation of the human and economic problems of mental illness and health. Twenty other national organizations are joined in the work of the Commission. Time will not permit me to even touch on the invaluable work of our Council on Medical Education and Hospitals, the Division of Councils of Therapy and Research, the Bureau of Health Education, the Department of Public Relations, the Council on Scientific Exhibits, and the many other groups within our setup, but we owe each and every one of them a rousing vote of thanks for devoted performance of duty.

Yes, we are moving along in the right direction. But before we can successfully achieve the objectives we proclaim to the public, we have to deal with some critical problems affecting internal relationships in the field of medicine. Uppermost is the situation existing between some of the hospitals and the anesthesiologists, radiologists and pathologists. I cannot go into detail on specific instances because there are peculiar local circumstances to be considered in each case. However, I have found that where serious differences of opinion exist between hospital administrators and the specialists I have listed, stubbornness and lack of understanding create the roadblocks that cut off amicable solution.

We don't want hospitals to engage in the practice of medicine and we don't want them to exploit physicians. At the same time we must recognize the fact that departments of radiology, pathology and anesthesiology should

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Address to the House of Delegates by Elmer Hess, M.D., President of the American Medical Association, at Boston, Nov. 29, 1955.

be self-supporting. Above all there should be the realization on both sides that the welfare of patients supersedes everything else. We cannot afford to let the quality of care for hospital patients suffer because of internal bickering over operating policies. The differences which exist between certain physicians and hospitals can be resolved through intelligent discussion across a conference table. If we cannot work out our own problems sensibly then we have no right to insist that outside influences be excluded.

Another sore spot which has arisen in various parts of the country is the dispute over circumstances under which medical school faculty members are permitted to engage in the private practice of medicine as a means of supplementing income. This situation has created bad publicity in some of the cities I have visited. Surely, intelligent and temperate discussion of this problem within the profession would be more desirable than a public brawl. I understand that the Council on Medical Service is to make a progress report at this session on the exhaustive study of the problem which is being made in cooperation with the Council on Medical Education and Hospitals, the American Hospital Association and the Association of American Medical Colleges. Please let's work this out according to the needs of a given situation in a manner befitting intelligent, well-educated and mature men.

There has also been called to my attention in various parts of the country certain activities of the Joint Commission on Accreditation of Hospitals. I am hopeful that the Committee which has been appointed to review functions of the Joint Commission will come up with recommendations that will eliminate the points at issue. The citizens of this country, the hospital and the medical profession owe much to the Joint Commission for the protective service which it has always rendered. We should be able to iron out any wrinkles which may exist.

I think also that one of our greatest internal problems is a reluctance to recognize the fact that we are not cast from a perfect mold. A major responsibility which we have to the people we serve is to assure them of top quality medical care by men of unquestionable integrity. We help neither ourselves nor the public when we close our eyes to the misdeeds of the very few among us who care not for the pledge of ethical conduct. No matter what station a physician may have reached in his community, the members of his society should be ruthless in dealing with him when it is proved that he has aborted the Principles of Medical Ethics by which we are all bound.

Now I would like to turn for a moment to some of our external problems. As you all know there have been some changes in the doctor draft law during the past year. However, these still leave much to be desired. It is my firm belief that the doctor draft will continue indefinitely unless we get Congress to do something about it. If present conditions of service are allowed to exist in our armed forces, the career medical man may become extinct. As of the moment only one-third of the Naval Medical Corps is composed of career personnel. The balance is made up of reservists and draftees. I am sure that a similar situation exists in the Air Corps and the Army. During the past few months I have given this matter much thought and I am prepared to present several plans for our action. I believe that the A. M. A. can take positive leadership in solving this very important problem. We can be of good service to Congress by showing the way it can be done. From conversations I have had with military personnel of various grades, I feel that 80% of the problem involves economics. Another part lies in the recruitment program for career services. A committee at the Pentagon has already launched a study into this problem and I think it is our responsibility to offer all the help we can.

In the field of legislation there is another development which I think should command our special attention. During the last session of Congress the House of Representatives adopted amendments to the Social Security Act which would permit cash payments for total and permanent disability after the age of 50, make women eligible to receive their pensions at age 62 instead of 65 and extend certain dependency benefits. These amendments are now before the Senate Finance Committee. I think we all realize that Social Security is here to stay and few of us have any violent objection to the over-all program. However, we are directly concerned with phases of the law which pertain to medical matters. It seems to me that at every session of Congress in recent years office seekers have vied with each other in seeking to amend the program so that it would appear our citizens will get more for nothing.

The ink was hardly dry on the disability-freeze amendment before this Congress came up with H. R. 7225, the provisions of which I have just outlined. We have not yet had any experience with the "freeze" results. Why not wait until we see how this works before attempting something new? There are many questions that have to be answered before we rush ahead with promises of alleged greater benefits to our people. Can we afford the increased taxation? After all, that is the only way the so-called benefits can be financed. What is the definition of total and permanent disability? I know of one area where there are four agencies caring for the total and permanently disabled. I might add that they are doing a good job. However, each of the four agencies has an entirely different definition of total and permanent disability. Who winds up in the middle on this? The doctor, of course. I think that the citizens of this country should insist on a complete reevaluation of the Social Security program. As citizens, as well as physicians, we should join in demanding that such a study be made. So far as I know, a survey of this nature has never been made in the 20 years of the program's existence.

The first half year of my presidency is now about over. I can see the three-quarter post ahead of me and know that the home stretch is just beyond. This is an office which has many rewards and many trials. In the year I served as president-elect and since my inauguration last June, I feel that I was the one who gained the most from the thousands of miles of travel by train and plane, from coast to coast and border to border.

I have seen unfolded the magnificence of America and its people. I have shared with them their ambitions and achievements. If through some magic I were granted the fulfillment of one wish, I would wish that every man, woman and child had the opportunity to see and know America as I am doing now. Whether you thrill to the sight of towering masterpieces in steel and glass, or enjoy the simple luxury of ice water on tap in the heart of a desert, the realization comes that this is the product of enterprising, free Americans; that the guarantee of independence and individual rights stimulates and develops incentive.

The physicians of America share with all our citizens these priceless blessings. And they treasure these God-given rights as do the laborers, the farmers, the journalists, the businessmen and the industrialists; as every individual who has pride in his own ability and integrity and who prizes the self-respect that can be earned only through self-reliance. American medicine is proud of its contributions toward the preservation of these principles. We will always serve our nation and its people with unwavering devotion.

WHAT'S AHEAD FOR AMERICAN MEDICINE

It does not take a Swami with a crystal ball to forecast what socioeconomic developments the American medical profession has to face in the coming year. Events of the past few months already foreshadow the future. What we do need is the genius with which to cope with the problems that have been and are now being created. The year 1956 will bring with it another presidential election. Scores of pressure groups, motivated primarily by self-service, will flood Congress and the leaders of both major political parties with strong demands for favors in return for votes. The hapless citizen, enthralled by flowery oratory, his vision dimmed from viewing many political rallys on television will perhaps be unaware of the hand that takes money from his own pocket and places it again before him on the silver platter of largess. The transition, as always, will leave him a little less to put back into his purse.

In the months ahead, political candidates at every level of our government will sing in crescendo the national theme song of election campaigns, "I Promise Thee." Higher parity for farmers, special legislative measures for labor, more benefits for veterans and greater social security coverage for all. Unless we have a radical departure from past performances, little will be said about how we will finance this promised manna from the campaign headquarters. Among the political lollipops which will be dangled before the public will be many measures affecting the medical profession. In the past session of Congress there were introduced 403 bills and resolutions pertaining to medicine. This was only four less than the total number we had to deal with in both sessions of the 83rd Congress. Just like the weather, everyone is interested in health and our lawmakers are well aware of this fact.

During the next session of Congress we can expect the introduction of a proposal for the building of a national library of medicine and a museum of medical history. The museum would feature educational exhibits on historical developments in medical history and would be open to the public. The national library of medicine was suggested by the Hoover Commission. We certainly have an interest in these proposals and should offer whatever assistance we can in bringing them to fruition.

The earning power and living standards of the nation's 9½ million low income families will come under intense scrutiny of Congress during the next session. Physical and mental disabilities of these people will constitute one phase of the study and will undoubtedly affect any proposals that are made. The American Medical Association should be able to provide considerable assistance in this project. Through its Council on Medical Service it has been studying the medical care problems of low income groups for several years. We are now cooperating in a survey of mental illness and health problems in the United States. This, too, will result ultimately in legislative proposals that will affect the profession of medicine. It is a project that we should watch closely as it develops.

Then we have that which I warned against a few moments ago, further amendments to the Social Security Act. The American Medical Association has no quarrel with the over-all program. It is interested only in those phases which specifically affect medicine. We have watched Social Security amendments piled on amendments ever since the inception of the law. There has never, to my knowledge, been a serious reevaluation of the program made in the 20 years of its existence. I think it is time that the citizens of this nation insisted on a full accounting of what is happening to Social Security and what further expansion of the program would mean to every taxpayer. Some of the more recent amendments which have been proposed would have a serious effect on the practice of medicine in the United States. Our congressmen should be informed fully of our feelings on the subject.

Today you will hear this topic discussed in greater detail and I will not take up any more of your time in talking about it now. The year ahead will keep all of us busy, much busier than we have been for some time. Those of us who are attending this meeting have one major purpose in common—continued improvement in the public relations of the medical profession. I think the key to the way people outside the medical profession regard us is the manner in which we regard them. It is time that we learned to live with our neighbors in our respective communities. We are no more perfect than any other group in our society. We have no monoply on service to humanity. It is our responsibility, individually and collectively, to seek out other groups with whom we can communicate intelligently. No one is going to give one hoot in hades about the problems of the medical profession if we sit on our pedestals waiting for others to come to us.

Our training may have bred in us the habit of individual responsibility, but we are not the only persons with such training. There are millions of other individuals in this country who are just as interested in the promulgation of our free enterprise system as we are. Many of them feel even more strongly about the threat of socialism than we do. Whatever political battles the medi-

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Keynote address delivered at the eighth National Medical Public Relations Conference by Dwight H. Murray, M.D., President-Elect of the American Medical Association, at Boston, Nov. 28, 1955.

cal profession may have won in the past were not won by physicians alone. Victory was achieved only through the support of millions of other voters. And we will always need this support in every legislative enterprise which commands our interest.

We talk much about how good medical public relations begins in each doctor's office. Unfortunately, that's where most of it also ends. Outside of his office, many a doctor shields himself from contact with other citizens like a cloistered nun. He uses his wife and children as a buffer between himself and his neighbors. Join the P. T. A.? Sorry, too busy. . . . Serve as an official of the local Boy Scout Troop? My boy is a member, but I haven't much time to help out. . . . How about acting as health officer of the Boys' Club? I'd like to very much, but. . . . Lions Club? Rotary? Kiwanis? Elks? Chamber of Commerce? Yes, I'm a member and I will try to get to the next meeting, but you know how it is.

Is it any wonder, then, that we get the feeling so often that nobody understands us and our problems? How can they? We never give other people a chance to know us. Do we understand our neighbors and the rest of the citizens of our respective communities? Hardly. We know their appendixes, and their kidneys and their livers and their tonsils, but we don't know what makes them tick as fellow human beings who live and eat and work and play just as we do. If we would but stop and look around we would learn that we have many things in common with our neighbors and they would be very willing to help us with our problems if we would help them with theirs.

Quite often when we set out to do a job of public education we think in lofty terms—brochures, pamphlets, magazine articles, radio and television programs, forums, symposiums, luncheon and dinner meetings. Yet we ignore the simplest, least expensive and most effective medium of communication—word of mouth, neighbor-to-neighbor and person-to-person. People like to ask questions and they want immediate answers. They can't talk to a pamphlet or a magazine. They can't interrupt a radio or television program. And quite frequently then we set up public meetings, at which we invite questions from the audience, the question period is so short that the moderator closes the meeting before most of those in the audience have had an opportunity to get over their initial stage fright. Don't misunderstand me. I am not suggesting that we eliminate the popular, accepted mediums of mass communications. It is my hope that we will learn to augment these excellent devices with the more intimate mode of communication, personal chats with our neighbors and the rest of our nonmedical friends. It might be a good idea to key our public relations programs for 1956 to this spirit of neighborliness.

The technical aspect of public relations in medicine has grown considerably during the past few years. Many state and county medical societies have employed full-time public relations people to assist the public relations chairmen and their committees in formulating workable programs of getting medicine's story to the public. At A. M. A. headquarters, Leo Brown, in compliance with the wishes of the House of Delegates and the Board of Trustees, has organized a public relations department that is second to none in this country. The members of his staff are highly skilled in all phases of PR techniques and they are at your service, around the clock if needs be.

A good job has been done by everyone—at the county, state and national levels—in putting across a formal public relations program for the medical profession. You have all cooperated splendidly and approached the many problems confronting us with intelligence and a remarkably high degree of ability. It would be easy to sit back now and drift into a dream world of complacency. This is something we cannot afford to do.

It is at this point that we should reexamine our respective PR programs and resolve to clobber the cliches, improve old techniques and develop new ones. There is a great deal of PR talent assembled in this room. Surely among us there must be some fresh ideas and untapped stores of imagination. As we approach 1956 we still have to cope with the oft-repeated charge that organized medicine is against every measure that would enhance the health and welfare of our nation's citizens. We still have to get around the problem posed by the individual who says that "my doctor is wonderful, but the other you can have." We need not delude ourselves; our work is far from finished.

I think that in the year ahead we should work even harder than before to further improve our relationship with the press. These are the people who daily put into print the message we want to carry to the general public. They are not our servants nor our employees and should never be so regarded. We should learn to tell our story in such a way that it is always newsworthy. We should not rely on personal friendships with publishers and editors to bring extraordinary pressure on reporters for coverage of our various meetings and functions. The emphasis should always be on the newsworthiness of what we do and say and not on personalities. A press item which is printed merely as a courtesy to a friend has no value whatsoever. The only person who will read it is the one who imposed on his friendship with the editor or publisher. Our job during the year ahead will be more clearly defined by the speakers who follow me. Nowhere in the excellent program which has been arranged by the Public Relations Department do I see a low spot. We have much to learn at today's conference and I'm certain that the time you spend here will pay many dividends when you go back to your respective communities.

Public relations is not the nebulous glob of gobbledygook that some people make it sound like. In the past 25 or 30 years it has developed into a profession that requires many exacting and specific skills. The public relations chairmen of our medical societies need the assistance of those who devote their full time and specialized knowledge to this field. Wherever possible the services of these specially trained men and women should be obtained, even if only on a part-time consulting basis. In the long run the entire medical profession will benefit from such a policy. Another year is ahead of us, bringing with it challenges—some old and some new. No problem is so great that it cannot be solved. None is so small that it should be ignored. Let's shine up the old tools and pick up the new and get to the job ahead with vigor and imagination. The scope of our projects should be limitless.

REPORT ON ACTIONS OF THE HOUSE OF DELEGATES, NINTH CLINICAL MEETING, NOV. 29-DEC. 2, 1955

The following statement is a brief report prepared in the office of the Secretary of the American Medical Association and is a summary of some but not all of the actions taken by the House of Delegates at its meeting in Boston. In subsequent issues of THE JOURNAL *a more detailed abstract of proceedings will appear, and, when these have been published, in due time there will be made available from the office of Secretary of the Association the official proceedings in booklet form. These will be available on request direct to Dr. George F. Lull.*—ED.

Social Security, the report of the Committee on Medical Practices, grievance committees, and revisions of the Code of Medical Ethics were among the major subjects of discussion and action by the House of Delegates at the American Medical Association's Ninth Clinical Meeting held Nov. 29-Dec. 2 in Boston.

Named as the 1955 General Practitioner of the Year was Dr. E. Roger Samuel of Mount Carmel, Pa., whose selection by a special committee of the Board of Trustees was announced at the opening session on Tuesday. Dr. Samuel, a former member of the House of Delegates and a general practitioner for 35 years, received the medal and citation presented annually for community service by a family doctor. Dr. Gunnar Gundersen, A. M. A. Board Chairman, who made the award to Dr. Samuel, also presented a special citation to Dr. Torald Sollmann of Cleveland, charter member of the A. M. A. Council on Pharmacy and Chemistry for over 50 years and its chairman since 1936. Dr. Sollmann, 81 years old, was honored for his "outstanding service to the medical profession and on behalf of the advancement of medical science."

Total registration at the end of the third day of the meeting had reached 7,027, including 3,672 physicians.

SOCIAL SECURITY

Major legislative policy action taken at the Boston meeting involved H. R. 7225, known as the Social Security Amendments of 1955. This bill, which was passed last summer by the U. S. House of Representatives and is now pending before the Senate Finance Committee, includes a proposal for federal cash benefits to selected individuals judged to be permanently and totally disabled. The House of Delegates adopted a substitute resolution proposed by the Reference Committee on Legislation and Public Relations to combine the intent of four resolutions and three supplementary reports of the Board of Trustees dealing with H. R. 7225 and other aspects of Social Security. The substitute resolution stated the following policy:

That the American Medical Association reiterate in the strongest possible terms its determination to resist any encroachment upon the American system of medical practice which would be detrimental to our patients, the American people;

That the American Medical Association urge and support the creation of a well-qualified commission, either governmental or private or both, to make a thorough, objective and impartial study of the economic, social and political impact of Social Security, both medical and otherwise, and that the facts developed by such a study should be the sole basis for objective non-political improvements to the Social Security Act, for the benefit of all of the American people;

That the American Medical Association pledges its wholehearted cooperation in such a study of Social Security in the United States, and will devote its best efforts to procuring and providing full information on the medical aspects of disability, rehabilitation and medical care of the disabled, and

That copies of this resolution be transmitted to the President of the United States, to all members of the Cabinet, to all members of the Congress, and to all constituent state medical associations.

OASI COVERAGE OF PHYSICIANS

In another action on Social Security, the House passed the following resolution designed to determine the exact attitude of physicians toward compulsory or voluntary coverage under the Social Security system:

WHEREAS, Misunderstanding exists about the position of the medical profession on the question of the inclusion of physicians in the Old Age and Survivors Insurance provisions of the Social Security Act; therefore be it

Resolved, That the House of Delegates of the American Medical Association recommend to state societies that they poll their entire membership on this question and that the results of the poll be transmitted to the Board of Trustees of the American Medical Association as soon as possible.

REPORT ON MEDICAL PRACTICES

The House passed a substitute resolution offered by the Reference Committee on Insurance and Medical Service to implement the findings and recommendations of the Committee on Medical Practices (Truman committee), which studied the basic causes leading to certain unethical practices and unfavorable publicity. The resolution adopted with the proviso that it is subject to review by legal counsel, includes the following points:

That a Continuing Committee on Medical Practice be created in the American Medical Association to conduct a study of the relative value of diagnostic, medical and surgical services and to report its findings and recommendations to this House in the same manner as is now followed by other committees and councils of the Association;

That this committee shall consist of five members of the House appointed by the Speaker, three of whom shall be general practitioners; . . .

That this committee be directed to utilize all possible means to stimulate the formation of a department of general practice in each medical school;

That the American Medical Association approve of the medical school teaching programs which afford the medical student opportunity for experience in the general practice of medicine;

That the representatives of the American Medical Association on the Joint Commission on Accreditation of Hospitals be instructed to stimulate action by that body leading to the warning, provisional accreditation or removal of accreditation of community or general hospitals which exclude or arbitrarily restrict hospital privileges for generalists as a class regardless of their individual professional competence, after appeal to the Commission by the County Medical Society concerned;

That this committee cooperate in every way and assist the Public Relations Department of the American Medical Association to present a program of public education designed to bring about a better understanding of all fields of medical practice, and

That this committee use its full influence to discourage any arbitrary restrictions by hospitals against general practitioners as group or as individuals.

In a complementary action on the same subject, the House also approved a supplementary report of the Board of Trustees that included the following suggestions: 1. All nonsurgical groups should be asked for their suggestions and cooperation in carrying out a public education program on the value of diagnostic and medical work. 2. The various boards should be encouraged to reappraise the practice restrictions on their board diplomates. 3. The American Medical Association should continue to discourage arbitrary restrictions by hospitals against general practitioners. 4. Organized medicine is "ready, willing and able to solve satisfactorily its own problems, and such assurance should be given to the American Hospital Association or any other group concerning itself with such problems."

GUIDES FOR GRIEVANCE COMMITTEES

The House approved the report of the Committee to Recommend Guides for Grievance or Mediation Committees and commended the Committee for "their superb approach to this problem." Purpose of the guides is "to promote general uniformity of organization and function of grievance committees—and better understanding of their purposes—without interfering with the inherent autonomy of constituent medical associations. Constituent associations are therefore urged to implement these guides without delay."

The Reference Committee on Miscellaneous Business made the following recommendations, which were adopted by the House:

> Your reference committee desires to support the recommendation that a brochure be published promptly which will outline the recommendations regarding the activities of Grievance Committees and that this brochure be given wide distribution.
>
> We recommend also that there be an appendix to this brochure in which additional, practical suggestions shall be included.
>
> We desire also to support the contention that there should be no equivocation concerning the naming of such committees and we recommend that a uniform policy be adopted in which they are called frankly "Grievance Committees."
>
> Finally, your reference committee recommends that because of the many variables, including the laws of the several states, which may influence the operations or procedures followed by State Grievance Committees, legal counsel shall be sought at the local level within the states.

MEDICAL ETHICS

A proposed revision of the Principles of Medical Ethics and Precepts of Manners of the American Medical Association was submitted to the House by the Council on Constitution and Bylaws. The following reference committee suggestion was adopted by the House:

> In discussion it became evident that there was need for wide distribution of these principles and careful study of the proposed changes not only by this Reference Committee but also by all members of the House and in fact all members of the Association. It seemed desirable also that the two Councils (Council on Constitution and Bylaws and the Judicial Council) should meet in joint session to consider these proposals. Your Reference Committee therefore recommends that these proposals be tabled for further consideration at the next annual session of the House to be held in Chicago in June, 1956.
>
> In the meantime, it is recommended that these proposals in their entirety be widely publicized and that consideration be given to publishing, in the Journal of the American Medical Association and also in state medical journals, these proposed changes in the Principles. It is also recommended that consideration be given to the mailing of copies to each member of the Association. Finally, your Reference Committee recommends that prior to the meeting in Chicago next June the Council on Constitution and Bylaws and the Judicial Council meet in joint session to consider these proposed changes.

In another action on revisions of the Principles of Medical Ethics, the House also approved a plan requiring that all resolutions dealing with changes in the Principles of Medical Ethics shall be considered over a period between sessions of the House before final adoption.

MISCELLANEOUS ACTIONS

Among many other actions on a variety of other subjects, the House of Delegates also: (1) recommended that the Board of Trustees give consideration to a dues increase for all Association members, with the increase designated for contribution to the American Medical Education Foundation; (2) adopted a resolution on the practice of pathology declaring opposition to "the division of any branch of medical practice into so-called technical and professional services"; (3) recommended that further purchase and distribution of Salk poliomyelitis vaccine be carried on by the presently available commercial avenues used for other immunizing agents, and that all vaccines, once proved, should enter the usual channels of distribution; (4) approved appointment of an A. M. A. committee to study the prevention of highway accidents; (5) commended the Women's Auxiliary of the A. M. A. for its financial contributions in support of medical education and requested the Auxiliary to continue its active efforts; (6) commended the Sears Roebuck Foundation for its thoughtfulness and foresight in sponsoring the new plan for financial assistance in establishing medical practice units; (7) received progress reports from the Commission on Medical Care Plans and from the A. M. A. Law Department on its studies of professional liability; (8) approved a Board of Trustees recommendation that the State Journal Advertising Bureau be separated from the American Medical Association and be given full autonomy; (9) congratulated the physicians of Iowa for their efforts in supporting the position that the practice of medicine is the right of the individual; and (10) approved the selection of Minneapolis for the 1958 Clinical Meeting and Chicago for the 1960 Annual Meeting.

OPENING SESSION

Dr. Elmer Hess, A. M. A. President, told the opening session of the House that complacency should be regarded as the medical profession's greatest enemy. Although good progress is being made in informing the public and the profession of the objectives of organized medicine, he said, educational efforts must be intensified and the list of physicians' tangible accomplishments for the health benefit of the public must be increased. Dr. Leo H. Bartemeier, Chairman of the A. M. A. Council on Mental Health told the House that the new Joint Commission on Mental Illness and Health will be ready to embark on its nationwide study and reevaluation of the human and economic problems of mental illness after the first of the year. Dr. Bartemeier, who is chairman of the board of trustees of the commission, appeared before the House to explain the functions of the new commission, which was organized to carry out the Mental Health Study Act passed by Congress earlier this year without a dissenting vote in either house.

MEDICAL EDUCATION CONTRIBUTIONS

The A. M. A. Board of Trustees announced that it again has appropriated $100,000 to be contributed to the American Medical Education Foundation for the support of medical schools. The California Medical Association presented a $25,000 check to the AMEF, and the Utah State Medical Society announced an $11,000 contribution.

PUBLIC RELATIONS

PUBLIC RELATIONS SOCIETY OF AMERICA

I have been invited to speak to you about the various attitudes of the public relating to medicine, and to participate in your panel discussion. You wish to know what we of the profession of medicine are doing as individuals and as organized groups to combat these attitudes. In my opinion we must approach this by thinking of two things: first, the public's failure to understand the problems of doctors and, second, the doctor's failure to understand the psychological needs and the problems of the patient and his family.

The failure of the public to understand the doctor's problems has much in common with the story of our city of Los Angeles. For years Los Angeles was advertised and publicized all over the United States, by deliberate plan, to entice people and industry to our area. Eventually there became fixed in the public mind the belief that nothing could be disagreeable or unpleasant in Los Angeles, the paradise spot of the world. The truth is that there is smog—transportation is a mess—the orange groves are being torn out to be replaced by row on row of houses. The mocking birds are now a rarity. To drive from our once beautiful mountains to our once beautiful beaches is now a day's ordeal of traffic bedlam. Yet the people still come believing that all is bliss once they reach Los Angeles. There are wonderful things here in Los Angeles. There are great advantages here, but the stereotyped ideas of the public concerning Los Angeles are somewhat erroneous. So it is with medicine.

Medicine has advanced so rapidly and to such a great degree—the miracles of medicine have been romanticized—TV and radio programs and magazine articles have extolled them so invitingly (though often incorrectly) that now the public believes implicitly that medicine is an exact science and that if only a doctor takes an interest in a case and does what is right that inevitably a cure can be assured. On the contrary, medicine is not an exact science. It depends so much on so many variables in individual reactions—in bodily structure—in the physiology and psychology of a patient (to say nothing of the skill and personal ability of the physician who will make the decisions) that by no means can we say that in medicine one thing must follow another.

Nor does the fact that in medicine many procedures are so common and usually unaccompanied by bad results allow us to accept good results as being inevitable sequelae. Yet so widespread is that belief that recently one judge of our courts ruled that, since hypodermic injections are commonly made without trouble and since everyone has, at some time or other, had an injection of some sort, it follows that, if any complications arise following the injection, that fact is of itself prima-facie evidence that the injection was unskillfully given or negligence was present. How stupid can we be in judging cause and effect? Yet such things cause malpractice suits and problems for the doctor.

The truth is that often, when two parties are concerned in an endeavor, great dissatisfaction occurs when one party expects to be given more from the other than that other can possibly provide. This often holds true in the practice of medicine. If a person be saved from death from one cause, it is inevitable that some other illness will claim him at a later date. Doctors can only extend the period of life and influence the manner of eventual passing. Doctors cannot give perpetual freedom from illness and death. I believe another failure of understanding by the public is in regard to a doctor's finances. Many people believe that all doctors are wealthy and have income other than that which they derive from their practice. This is not true. These people also believe that a doctor should be completely self-sacrificing with little interest in his own or his family's comfort and welfare.

Now I grant you that only part of the people are this misinformed in regard to medicine, but there is a definite percentage of such people. Some think that if the doctor were kindly disposed he could cancel all his bills or at least reduce them to a nominal amount. Others even believe that doctors are responsible for or set the charges of hospitals. Often a doctor is called and asked to speak to the superintendent of a hospital and tell him to reduce the charges or to cancel them because the patient thinks they are too high. I grant you that costs are high. At times they may be exorbitant. I do know that people who are not entirely familiar with medicine or hospital procedures are not competent to judge the appropriate fee for most procedures. The drawing of blood for a test is the least part of such test. Yet this is all the patient sees. The making of stained tissue sections and their microscopic study are complex, involved procedures that cannot be visualized by the uninitiated person.

Now we must say something about the doctor's failure. Doctors often fail to explain findings or procedures to their patients. They fail to make the patient feel that he is a part of the cure and to really enlist him and his family in the proper conduct of the illness. Doctors fail sometimes to realize that not only is a disease present but that environment and other factors may be the important things governing success or failure in treating a patient.

Read by E. Vincent Askey, Speaker of the House of Delegates, before the Eighth National Public Relations Conference, Los Angeles, Nov. 16.

Often emotional factors are more important to the patient's welfare than the reason he gives for calling the doctor. Good doctors sometimes fail to see that kindness, pleasant personality—bedside manner, if you please—or even an engaging handsome appearance are the reasons why some patients will continue to go to incompetent, irregular cultists or practitioners interminably, even though the disease condition is getting worse day by day under improper treatment. So what are we doing about these things and others?

The medical associations constantly are trying to acquaint the public with the true state of knowledge in medicine by means of talks, magazine articles, sponsored TV and radio programs, panel discussions, public health fairs, and expositions. Perhaps that has been the trouble. We have been so busy trying to give the public the real value information in regard to sickness and health that we have ignored other things the people can really understand. The patient is not so much interested in all the scientific aspects of a disease as he is in some other factors involved. How dangerous is it? How long will he be disabled? Will it leave any permanent disability? How much is this all going to cost?

People have to have something they can see for their money. They resent paying for something (especially an illness) they didn't want in the first place and for which they have little to show after it has gone. Some people complain about paying a physician for an examination if it discloses nothing abnormal, although they willingly pay many times more for a bridge or plate that improves their appearance. They would much rather pay for a hairdo by a hairdresser of note. The doctor should explain to the patient, therefore, what he has done for him. In fact, perhaps the patient should be given some one outstanding benefit to dwell on that he can tell about to his friends.

However, perhaps we should admit that those problems that we have solved in public relations have come as a result of our learning how to work with the press and with you public relations experts. We now see increasing willingness of the press to give true pictures rather than those that to our eyes seem distorted. Sometimes we really need you people to put our words into a language that the public can understand. I might illustrate this need by quoting to you what a stenographer typed after hearing a doctor explain the reason a very prominent man had died. Her transcription read as follows: "A great deal of the pyrosless became strundered and the eflux shunted anseribly to the left. The A-G ratio gonflowed and soporified the blood plasma. This consequently caused a great deal of congestion of the portal system. We had very little left to work with. What else could we do?" Now did you ever hear such gibberish? Yet some people complain that their doctor won't tell them anything. But I must hasten.

The medical profession has tried to determine by surveys what the actual situation is. Recently the Los Angeles County Medical Association has completed a survey that shows many surprising things. The most surprising to me is to find that the people really think that we are O.K. The love and respect given us by our patients make us truly meek. We have promoted methods by which the financial hardships of the patient may be relieved. The Blue Cross, the Blue Shield, many voluntary insurance plans began with our profession's sponsorship. The quasi-eleemosynary organizations such as the Tuberculosis Association, the Cancer Society, and the legion of others began with and continue by reason of our cooperation. We have opposed just as vigorously those things that we have believed to be against the best interests of the public's health. Socialized medicine, by whatever name called, is not good for the public and we oppose it. We need more good doctors and not a plethora of more poor doctors.

We welcome the interest of you men of skill in bringing truth to the public. We are firmly convinced that, if people were taught in school, in the press, and in other ways that the expectation of a certain amount of illness during their lifetime is normal, we could teach them also to take proper steps to avoid the hardships that illness always brings both in an economic as well as a physical way. Our children are being taught that only health is normal and they come to believe that, if sickness strikes, it is unfair. Children become adults but they carry over their resentment of all illness as being abnormal. Sometimes they resent even the doctor because he is associated with the primary object of their resentment.

To summarize, medicine's public relations problems stem, in part, from the fact that ours is a service normal people don't look forward to enjoying. Even after we have given good service, many people have the feeling of paying for something they didn't want in the first place. Our press has been too good. As a result, we are expected not only to subordinate our self-interest to the vital interests of the patient, which is reasonable, but also to be without any self-interest. We are expected to dispense only wonder drugs and to achieve only miraculous cures, whereas medicine is not an exact science and probably never will be. In any situation where the public expects more than a profession can deliver, disappointments, dissatisfactions, and, eventually, bad public relations are the result.

We are attacking—successfully in most instances—problems having to do with the availability, cost, distribution, and failures in the quality of our services. This is being done through programs of sickness insurance; ethical collections; medical social service, public service, or "grievance" committees; hospital standardization programs; 24 hour emergency telephone coverage for large communities; indigent medical care programs; and malpractice prevention. We are improving.

Individually and collectively, the vast majority of my colleagues deserve good public relations. With the help of your colleagues and with a continuously improved performance, I am sure we will earn better public relations. We believe that, if the truth becomes known and if false beliefs be dissolved by that truth, medicine will ascend to a pinnacle as yet unknown. Then the health of the people will approach near their desires and expectations, and we of medicine will see more of the conquests of disease that we have sought so long.

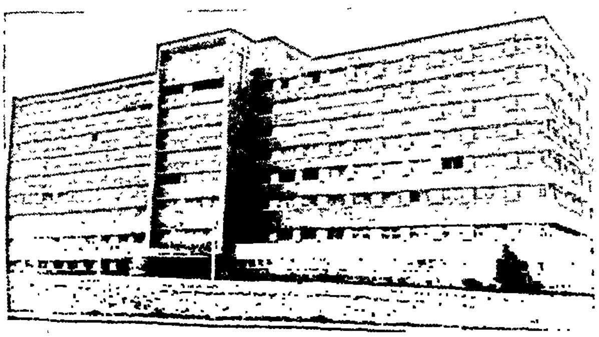
MEDICAL NEWS

ALABAMA

Outbreak of Diphtheria.—Dr. Walton H. Y. Smith, Montgomery, Alabama Department of Health, recently reported that 29 cases of diphtheria had occurred in Russell County between July 15 and Aug. 27. Most of the illnesses were mild. An immunization program was instituted in the county, and, by Aug. 22, over 8,000 injections had been given to children 16 years of age and younger.

ARKANSAS

New St. Vincent Infirmary.—The new multi-million-dollar St. Vincent Infirmary in Little Rock was recently opened, 66 years after the first St. Vincent Infirmary was founded by the Sisters of Charity of Nazareth. The new building has a 425-bed capacity and, when it is completed, will be an $8,500,000 project. The main hospital building contains 12 operating rooms. During the past two years the hospital has cared for upwards of 5,000 patients of all religious denominations. Dr. Henry G. Hollenberg is chief of staff, Dr. John E. Greutter, vice-chief of staff, and Dr. Joseph A. Buchman, secretary. Chiefs of divisions are Dr. Alfred Kahn Jr., medicine; Dr. Frank G. Kumpuris, surgery; Dr. Robert W. Ross, obstetrics and gynecology; and Dr. John M. Smith, general practice. The executive committee is composed of Drs. Jerome S. Levy, medicine; Bennett J. Reaves, obstetrics and gynecology; William G. Cooper, surgery; and John McC. Smith, general practice.



St. Vincent Infirmary.

CALIFORNIA

Survey of Pollinating Plants.—The Allergy Foundation of Northern California has been granted $3,500 from the estate of Joseph A. Murphy by the San Francisco Foundation for a field survey of important pollinating plants in northern California. The purpose of the survey is to determine the distribution of plants commonly causing asthma, hay fever, eczema, and other allergic diseases in this area. It is estimated that the survey will take about two to two and one-half years to complete. The results are to be published in book form, available to the medical profession.

Burn Center.—The St. Francis Memorial Hospital, San Francisco, recently opened its Burn Center, an integral part of the Plastic and Reconstructive Surgery Center. Located on the sixth floor of the hospital, its facilities consist of a ward of four adult beds or three adult beds and three cribs—depending on the need—and a treatment room with a thermostatically controlled treatment tub. The unit is air-conditioned and has ultraviolet lights. The Burn Center is under the direction of a team consisting of plastic surgeons, nurses, anesthetists, and residents in plastic surgery.

Physicians Retirement Association.—The Los Angeles County Medical Association announces completion of the Los Angeles Physicians Retirement Association plan, which, according to Dr. Arthur A. Kirchner, president of the voluntary retirement association and chairman of the county medical association's medical economics committee, is "the first such plan established under the impetus of any county medical group in the United States." The purpose is to enable members of the Los Angeles County Medical Association to save money toward their retirement. The association provides a means whereby the medical association's members may make investments on desirable terms most consistent with safety. At all times, the doctor owns outright the securities that his investments have purchased. Each member will receive benefits in the form of a reduced brokerage fee because of participation in the group.

FLORIDA

Fellowships Available.—The University of Florida College of Medicine, Gainesville, offers fellowships and assistantships for 1956 and 1957 for graduate study in the basic medical sciences. Applications must be filed not later than March 1, 1956. For information write to Office of the Dean, University of Florida College of Medicine, Gainesville.

Appoint Professor of Psychiatry.—Dr. Maurice H. Greenhill, formerly professor of psychiatry at the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, has been appointed head of the department of psychiatry at the University of Miami School of Medicine, Coral Gables, and director of the Psychiatric Institute.

ILLINOIS

Wins Trip to Hawaii.—Dr. Sherman S. Coleman, Northbrook, winner of an all-expense trip to Hawaii for submitting the best paper on bone irregularities in a contest sponsored by the Western Orthopaedic Association, delivered the award-winning paper in Honolulu, Nov. 8, at an assembly of the association. Dr. Coleman, an instructor in orthopedic surgery at Northwestern University Medical School, Chicago, had as his subject the diagnosis of congenital dysplasia of the hip in the newborn infant in which the hip bone develops abnormally before birth.

Chicago

Grant for Research.—The Multiple Sclerosis Foundation of America has presented $25,000 to the University of Chicago Clinics for research on the causes of multiple sclerosis. The funds will be used to support research by Dr. Richard B. Richter, professor of neurology, and Dr. Eugene M. K. Geiling, chairman, department of pharmacology, who will attempt to locate, within the nervous system, certain organic chemical compounds that have previously been injected into the blood stream. For this purpose, drugs and other compounds "tagged" with radioactive chemicals will be used. Some of these drugs are products of the university's "atomic farm," where drug plants are grown in atmospheres containing radioactive carbon dioxide.

Personal.—Dr. Maurice H. Cottle addressed the Baltimore Ear, Nose and Throat Society Nov. 6 on "Significance of Some Newer Anatomical and Physiological Concepts of the Nose." He also demonstrated nasal corrective surgery at Johns Hopkins Hospital and Presbyterian Eye, Ear, Nose and Throat Hospital in Baltimore, Nov. 7 and 8.——Dr. Joseph H. Chivers, medical director of Crane Co. since 1936, has been elected medical director of the Rehabilitation Institute of Chicago, a nonprofit institution concerned with the physical restoration of disabled persons. Dr. Chivers, who will serve as the chief medical officer of the institute, has resigned as volunteer head of the medical advisory committee of the institute to assume his new duties.——Dr. Samuel M. Feinberg, professor of medicine, Northwestern University Medical School, was recently installed as president

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

of the International Association of Allergology, a group composed of 30 national societies. At the association's annual congress in Rio de Janeiro, Dr. Feinberg presented a paper on allergic reactions to antibiotics. During a five-week lecture tour after the congress, he discussed problems in allergy and immunology at various universities.

LOUISIANA

Course on Fluid and Electrolyte Balance.—A program on fluid and electrolyte balance, under the chairmanship of Dr. George E. Burch, professor of internal medicine, will be presented Jan. 16-21, 1956, at Tulane University of Louisiana School of Medicine, New Orleans. The course, planned as a review of the fundamental principles of water and electrolyte metabolism, will also emphasize the clinical applications of these principles. Frequent conferences and discussions at the bedside of patients will be held. Inquiries may be addressed to the Director, Division of Graduate Medicine, 1430 Tulane Ave., New Orleans 12.

MARYLAND

Friedenwald Memorial Lecture.—Dr. Russell S. Boles, Philadelphia, gave the annual Dr. Julius Friedenwald Memorial Lecture, Nov. 3, at the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, on the medical versus the surgical treatment of gastrointestinal affections.

Appoint Professor of Obstetrics.—Dr. Arthur L. Haskins Jr., assistant professor of obstetrics and gynecology at Washington University School of Medicine, St. Louis, has been named professor of obstetrics and gynecology at the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, to succeed Dr. Louis H. Douglass, who retired July 1.

MASSACHUSETTS

Personal.—Dr. Sidney Farber, professor of pathology, Harvard Medical School, Boston, was named life chairman of the United Cerebral Palsy Research Advisory Board at the United Cerebral Palsy sixth annual convention, Nov. 11-13, in Boston.——Dr. Thomas C. Chalmers, an associate in medicine at the Harvard Medical School, Boston, has been appointed chief of medical service at the Lemuel Shattuck Hospital. For two years Dr. Chalmers has been a member of the department of metabolism at the Army Medical Service Graduate School.

Award to Dr. Yakovlev.—At its annual convention in Boston, United Cerebral Palsy presented the 1955 United Cerebral Palsy-Max Weinstein award for outstanding scientific achievement in cerebral palsy to Dr. Paul I. Yakovlev, clinical associate professor of neuropathology, Harvard Medical School, Boston. The award, which consists of a silver plaque and $1,000 in cash, was given to Dr. Yakovlev for studies in the anatomy and physiology of the human brain. Dr. Yakovlev was recently appointed curator of the Warren Anatomical Museum at Harvard Medical School. During the convention a medical exhibit compiled from his large collection of anatomic specimens of the human brain was shown at the museum for the first time.

Veteran School Physician.—When Dr. David M. Hassman, for 34 years medical director of school health services in Brookline, recently retired from that post, the school committee adopted a resolution, which read, in part: "Whereas he has devoted himself wholeheartedly and generously in the interests of the health of the children and staff members of the public schools, Whereas, through his wise counsel and personal devotion, he has left the imprint of his spirit on all with whom he has been associated, Therefore, be it resolved that the School Committee of Brookline, acting unanimously, pays him tribute and expresses its appreciation and its gratitude for his service to the schools of the Town." Dr. Robert H. Hamlin, the town's health director, has been named director of school health services, and a contract has been entered into with the Children's Medical Center of Boston for the full-time services of Dr. Maurice M. Osborne Jr. as school health physician.

MINNESOTA

Olmsted Community Hospital.—The $750,000 Olmsted Community Hospital, Rochester, was recently completed. At the dedication ceremonies, Dr. Charles W. Mayo spoke on community health and Dr. Walter C. Alvarez, Chicago, formerly of Rochester, on "Role of the General Practitioner." Other physicians participating were Dr. Charles C. Cooper, St. Paul, director, American Academy of General Practice; Dr. Theodore O. Wellner, president, medical staff, Olmsted Community Hospital; and Dr. William F. Braasch, president, board of directors, who called the hospital "the realization of our dreams, the result of voluntary efforts of the citizens of Rochester and Olmsted County, in truly the best tradition of American democracy." The hospital, which has a staff of 21 physicians, has 55 beds and 15 bassinets.

NEW JERSEY

Memorial Fund for Dr. Charles Block.—A memorial fund in honor of the late Dr. Charles Block, Newark, has been organized. The fund will be used for a laboratory to study heart disease in the new research building of Newark Beth Israel Hospital.

Personal.—Dr. Hilton S. Read, Atlantic City, was recently honored by the University of Marburg, Germany, when he received the Phillips medal, which was bestowed by the German consul in New York. The medal was awarded to Dr. Read *in absentia* by the president and senate of the University of Marburg on the occasion of the 428th anniversary of the founding of the university. The citation read, "For meritorious service to the University of Marburg through having made it possible for more than two doctors of Western Germany to receive additional training in the United States of America."

NEW YORK

Professorship in Cardiovascular Research.—The University of Buffalo announces receipt of a $90,000 grant from the Harry Dent Family Foundation, Inc., for the establishment of a professorship in clinical research in cardiovascular diseases. The grant will be applied over a five-year period, $12,000 each year for the professorship and $6,000 each year to cover expenses in conjunction with the research conducted.

Appointments in Pathology.—The Albany Medical College of Union University announces the promotion of Dr. Victor N. Tompkins from associate in pathology to associate professor. Newly appointed as assistant professor of pathology and bacteriology is Dr. William Thomas Smyth, who previously taught pathology at his alma mater, the State University of Iowa College of Medicine, Iowa City, and who is associated with the Veterans Administration Hospital in Albany.

Course in Radioactive Isotopes.—A four-month course in the medical uses of radioactive isotopes will be given Feb. 14, 1956, at the Queens General Hospital in cooperation with the Atomic Energy Commission. It will consist of weekly four-hour sessions of lectures, laboratory exercises, and clinical management of patients. Enrollment will be limited to 15. Information may be obtained from Dr. Leonard B. Goldman, Director, Radiation Therapy Department, Queens General Hospital, 82-68 164th St., Jamaica 32.

Closed-Circuit Television.—At its Postgraduate Assembly, Dec. 7-10, the New York State Society of Anesthesiologists initiated a two and one-half hour closed-circuit television program emanating from the new surgical suite at Bellevue Hospital, New York City. Dr. Emery A. Rovenstine, chairman, department of anesthesiology, New York Post-Graduate Medical School, was principal narrator for the following presentations: "A Preanesthetic Clinic"; "Chlorpromazine in Anesthesia—A Summary of Its Clinical Value"; "Light Ether Curare Anesthesia—A Clinical Study"; "Maintenance of a Constant Level of Pentothal Anesthesia by Means of an Electroencephalographic Servo Mechanism"; "Infant Resuscitation"; "Errors in the Performance of Spinal Anesthesia"; "Anesthesiological Management for Tonsillectomy"; "Direct Laryngeal Photography"; and "Bronchospirometry." The program was produced by the Medical Television Foundation for E. R. Squibb and Sons and the society, with the cooperation of the New York University Post-Graduate Medical School Audio Visual Department, New York University Office of Radio-TV, the New York City Department of Hospitals, and the Dumont Television Network.

Personal.—Dr. E. Nicholas Sargent, formerly of Far Rockaway, Long Island, has been appointed a full-time radiologist for the Virgin Islands.——The division of local health services, New York State Health Department, announces the appointment of Dr. David E. Overton as district health officer, Suffolk County Health Department; Dr. Ian D. McLaren, Olean, as Cattaraugus County health commissioner; Dr. Paul J. Christenson, Utica, as health officer, Utica City Health Department; and Dr. James W. Nolan, Mechanicville, as deputy health commissioner in the Albany County Health Department.——Dr. Karl Miller Wilson, professor emeritus of obstetrics and gynecology, University of Rochester School of Medicine and Dentistry, has been awarded the 1955 gold medal of the University of Rochester Medical Alumni Association for outstanding service to medical education. A member of the original medical school faculty assembled by Dean George N. Whipple when the school was opened in 1925, Dr. Wilson served on the faculty as obstetrician and gynecologist-in-chief at Strong Memorial Hospital until his retirement in 1952.

New York City

Dr. Amberson Accepts New Post.—Dr. J. Burns Amberson Jr., former president of the National Tuberculosis Association, has been appointed director of the New York Tuberculosis and Health Association. Dr. Amberson recently retired as attending physician, Presbyterian Hospital, and professor of medicine, Columbia University College of Physicians and Surgeons, becoming consultant at the hospital and professor emeritus at the college.

Revision of Sanitary Code.—Pursuant to approval of its plans for complete revision and modernization of the sanitary code, the City of New York Department of Health announces a contract between the city and the trustees of Columbia University under the terms of which the Legislative Drafting Research fund of Columbia will undertake the technical work of revising and rewriting the code. Columbia will be paid $160,000 for the work, which is expected to take three years. The board of health was set up in 1866, and its early regulations have evolved into the present sanitary code, the last revision of which was in 1941.

Training Courses for School Physicians.—The bureau of school health and the bureau of child health invite applications from qualified physicians who are interested in training for work in the New York City schools or in the health department's child health stations. As vacancies occur, they are immediately filled from those doctors who have completed the training courses. Doctors are paid on a per session basis for the duration of the course. School health applications may be obtained from Dr. Harold Herman, Bureau of School Health, 125 Worth St., New York 13, or by calling WO 2-6900, Extension 461, or from Dr. Harold Jacobziner, Assistant Commissioner in Charge of Maternal and Child Health, 125 Worth St., New York 13.

University News.—Dr. Andrew Dickson Hunt Jr. has been promoted to assistant professor of pediatrics at New York University College of Medicine. He formerly was assistant professor in pediatrics at the University of Pennsylvania School of Medicine, Philadelphia.——Dr. Margaret H. D. Smith, formerly instructor in pediatrics at Johns Hopkins University School of Medicine, Baltimore, and associate professor of microbiology, Tulane University of Louisiana School of Medicine, New Orleans, has joined the New York University College of Medicine as associate professor of pediatrics.——Dr. Philip H. Sechzer has been named assistant professor, department of anesthesiology, New York University Post-Graduate Medical School. Dr. Sechzer has also been affiliated with Seton Hospital, Fordham Hospital, and the Veterans Administration Hospital, Northport. He served as director of the New York State Society of Anesthesiologists in 1954 and is an adjunct member (examiner) of the American Board of Anesthesiology.

Dr. Schlesinger Goes to St. Louis.—Dr. R. Walter Schlesinger, of the Public Health Research Institute of the City of New York, has been appointed professor of microbiology and director of the department at the St. Louis University School of Medicine to replace Lloyd R. Jones, Ph.D., who, because of ill health, resigned. His appointment will be associated with the construction of expanded facilities for research and education in microbiology with particular emphasis on virus agents, cellular growth, and development. New laboratories, animal quarters, and facilities for tissue culture are being built. Dr. Schlesinger has been affiliated with the Rockefeller Institute for Medical Research, New York, the Institute of Bacteriology and Hygiene at the University of Basel in Switzerland, Beekman-Downtown Hospital, New York, and the Stamford (Conn.) Hospital. During World War II, he served on the Army Epidemiological Board as a member of the Commission on Neurotropic Virus Diseases. After the war, he was associate research professor of pathology and head of the virus research laboratory at the University of Pittsburgh School of Medicine.

NORTH DAKOTA

Personal.—Dr. William E. Cornatzer, head of the biochemistry department at the University of North Dakota School of Medicine, Grand Forks, has been asked by the U. S. Atomic Energy Commission to serve as consultant at the Oak Ridge (Tenn.) Institute of Nuclear Studies. The Atomic Energy Commission has also approved a grant for Dr. Cornatzer's studies on effects of atomic and x-ray radiation on cells of various organs. Grants were recently awarded him by the Lipotropic Research Fund and the American Cyanamid Company for study of lipotropic substances in liver disease.——Dr. Olaf A. Knutson, Buxton, was honored recently by friends and former patients for his 50 years of service to the community, which presented him with a gold watch.——The community of Ellendale recently honored Dr. Roy Lynde in celebration of his 50 years of medical practice. A parade down Main Street to the ball park preceded the program there, during which the athletic field was named after Dr. Lynde. The celebration ended with a night baseball game.

Robert D. Campbell Foundation.—The First National Bank of Grand Forks recently established the Robert D. Campbell Foundation in recognition of Dr. Campbell's service to the community. The resolution read: "The general purpose of the Foundation shall be to advance and promote the best interests of the University of North Dakota, its students, and faculty. It shall contribute to, assist in, initiate and carry on such activities, programs, projects and endeavors as may be deemed by its trustees to be best suited to the general purpose." Dr. and Mrs. Campbell gave to the bank as trustee more than $160,000 to be transferred to the foundation on their deaths. Contributions from any source will be accepted by the foundation to be used for any of its purposes. Dr. Campbell established practice in Grand Forks in 1894. In 1913, he helped organize the American College of Surgeons in Chicago. He is a past-president of the North Dakota State Medical Association. Chief of staff of St. Michael's Hospital in Grand Forks for 28 years, he was resident physician and surgeon for the Northern Pacific and Great Northern railroads from the time he established his practice in Grand Forks until he retired. In 1930, he was made president of the Great Northern Medical Association. Commissioned a captain in the Army Medical Corps in 1917, he was discharged as a major in 1919.

TEXAS

Personal.—Dr. G. Lucile Robey has been chosen "Typical Business or Professional Woman," by the Business and Professional Women's Club of Houston, which she has served as president. She has also been chairman of the health and safety committee for the local club and the state federation and chairman of the international relations committee.

Electron Microscope for Cancer Research.—The University of Texas M. D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston, has purchased an electron microscope to further cancer research being conducted and supervised by Dr. Leon Dmochowski, professor of microbiology. Baylor University College of Medicine, in the Texas Medical Center. It will also be used for undergraduate and postgraduate instruction courses in electron microscopy.

Mental Health Director Needed.—The Texas State Department of Health announces examinations for director, mental health division (salary range. $9,720-$12,120). The minimum qualifications are (1) an M.D. degree and one year's internship; (2) an M.P.H. degree or certification by the American Board of Psychiatry and Neurology; (3) five years of graduate training and experience in psychiatry or pediatric-psychiatry, including three years of approved training in one of the two fields (the two additional years must be training or experience in psychiatry, pediatric-psychiatry, or public health. One year of training or experience must include work with children. Preference will be given to those having experience in administering a state preventive mental health program or in the capacity of consultant in such a program.); and (4) licensure to practice medicine in Texas. For application write: Merit System Council, 814 Littlefield Building, Austin, or Dr. Henry A. Holle, Commissioner of Health, Texas State Department of Health, 410 E. Fifth St., Austin.

WASHINGTON

Epidemiologist Needed.—Applications will be accepted for the newly created position of medical epidemiologist in the Washington State Department of Health. Applicants must be graduates of an approved school of medicine and must have had a one year rotating internship; one year of graduate training in an approved school of public health; and three years of full-time employment in public health work, including one year of experience in some phase of epidemiology. The examination will consist of an evaluation of pertinent training and experience (100%). A qualifying interview may also be required. A recent photograph should be submitted with application to State Personnel Board, 1069 Capitol Way, Olympia (Mailing address: P. O. Box 688, Olympia).

WISCONSIN

Society News.—At its meeting Dec. 20 in the University Club, the Milwaukee Academy of Medicine will have as guest speaker Rene J. Dubos, Ph.D., head, department of bacteriology, Rockefeller Institute for Medical Research, New York, who will discuss "Physiological State and Susceptibility to Infection." Cocktails at 6 and dinner at 6:30 will precede the scientific meeting.

Student Loan Fund.—A gift of $10,338.75 to establish a loan fund for medical students in financial need has been made to the University of Wisconsin, Madison, by Mr. Richard Hartenstein, Milwaukee, whose son, Dr. Hans Hartenstein, Syracuse, N. Y., is a graduate of the University of Wisconsin Medical School (class of 1947). Individual loans will not exceed $500 within a single year or total more than $1,500. Interest at the rate of 2% a year will not begin until a year after the student has graduated. The Hartenstein family entered this country from Vienna, Austria, as immigrants in June, 1940, after having spent time in a Nazi concentration camp.

GENERAL

Tay-Sachs Association.—A group of Philadelphia parents have banded together to promote research on Tay-Sachs disease, and have formed the National Tay-Sachs Association. A national roster of affected families is desired to complete and enlarge the organization. Physicians are requested to urge the families of Tay-Sachs patients to contact the National Tay-Sachs Association, % Box 9602, Philadelphia 31.

Research on Schizophrenia.—The National Association for Mental Health has received from the 33rd Degree Scottish Rite a grant of $100,000 for research on schizophrenia. The grant will be allocated to a group of 20 projects constituting a coordinated research program on cause, treatment, and prevention. This program, carried on by the National Association for Mental Health for the past 21 years, has been supported by the Scottish Rite since inception of the program.

History of Medicine Medal.—The American Association of the History of Medicine offers the William Osler medal annually to the author of the best student essay submitted to the association. Essays must be submitted before the author's graduation or within one year thereafter. Essays that are the result of original research will be given preference, but the association will also consider other essays that show an unusual understanding of historical problems. Essays, not exceeding 10,000 words in length, must be sent before March 1, 1956, to Dr. Erwin H. Ackerknecht, Chairman, 113 Service Memorial Institutes, Madison 6, Wis.

Anti-Anemia Preparations Board.—Dr. C. Lockard Conley, associate professor of medicine at Johns Hopkins University School of Medicine, Baltimore, has been appointed secretary of the U. S. P. Anti-Anemia Preparations Advisory Board, to succeed Dr. Irving M. London, New York, who served as secretary for the past six years and now continues as a member of the board. The board, which reviews the results of clinical tests and processes applications submitted by the makers of oral preparations, assigns the potency to be claimed for the product. Other members of the board are: Dr. Frank H. Bethell, Ann Arbor, Mich., and Dr. William B. Castle, Boston.

Fellowships for Vacation-Time Study.—The National Foundation for Infantile Paralysis (120 Broadway, New York 5) offers fellowships during 1956 for medical students interested in vacation-time study. The dean of each approved medical school in the United States has been asked to nominate six candidates for these awards: two for research in the biological and physical sciences related to medicine; two for public health and preventive medicine; and two for physical medicine and rehabilitation. Students must have completed one year in medical school to be eligible for the research fellowships and two years for each of the other types of awards. Fellowships provide for full-time consecutive study during a period when the student has a minimum of eight weeks of free time. The stipend will be $200 a month for a minimum of two and a maximum of three months. Interested students should apply to the deans of their schools, who will provide the application forms, which must be submitted to the foundation for approval before the program begins. From six to eight weeks should be allowed for administrative action by the foundation.

Report of Rockefeller Foundation.—The annual report of the Rockefeller Foundation, 49 W. 49th St., New York 20, discloses that, of its total appropriations of $19,107,665 for 1954, the largest amount ($5,102,796) was used for medicine and public health. The largest grants made in the United States went to Harvard Medical School and the Massachusetts General Hospital, Boston, for a joint program of improved teaching in family care and to the Washington University School of Medicine, St. Louis, for a department of dermatology. The principal contribution made to the investigation and control of specific diseases was its virus program, which involved support for work by its own staff and for fundamental virus research elsewhere, including a grant of $210,000 to the virus laboratory of the University of California. The foundation also awarded a grant for continuance of a study by the committee for research in problems of sex, the National Research Council; a grant for study of the inheritance factor in sickle cell anemia to the Child Research Center of Michigan; and $150,000 in support of a proposal from the Department of Public Health of California that a chronic disease epidemiology center be established.

Multimillion Dollar Award for Medical Education.—The Commonwealth Fund has announced the award of $7,150,000 from its capital funds, to help medical schools clarify their educational objectives in the postwar world and to institute or to maintain creative programs in medical education. These unrestricted grants to 10 university medical schools are made in addition to the 2 million dollars already given to medical education by the fund in the fiscal year 1954-1955. Medical schools receiving the grants were: Columbia University College of Physicians and Surgeons, New York, $750,000; Cornell University Medical College, New York, $750,000; Emory University School of Medicine, Emory University, Ga., $600,000; Harvard Medical School, Boston, $1,000,000; New York University College of Medicine, $750,000; Tulane University of Louisiana School of Medicine, New Orleans, $750,000; Western Reserve University School of Medicine, Cleveland, $1,000,000; University of Chicago School of Medicine, $500,000; University of Southern California School of Medicine, Los Angeles, $300,000; Yale University School of Medicine, New Haven, Conn., $750,000. The Commonwealth Fund, established in 1918 by Mrs. Stephen V. Harkness, "to do something for the welfare of mankind," is continuing the study of other medical schools in line with this announced policy.

National Medical Fellowships.—The National Medical Association announces the availability of fellowships, scholarships, and loans to Negro candidates who are citizens of the United States. Loans are made to applicants who have received the M.D. degree and who wish to continue in training in a specialty with the ultimate purpose of attaining board certification. Generally these loans are $1,500 or less; application may be made for renewal of the loan. Under unusual circumstances a fellowship instead of a loan may be awarded in this category. Fellowships for advanced training are awarded (*a*) when a candidate is of outstanding quality; (*b*) when he is preparing himself for teaching responsibilities or for research in a teaching department or for leadership in a program of community health care; (*c*) when he has a definite appointment of this sort or an excellent prospect of receiving one on completion of his fellowship; and generally (*d*) when the training he receives will aid in the development of a particular school whose educational objectives seem sound. Fellowships in pediatrics, orthopedics, and neurology are awarded by the National Foundation for Infantile Paralysis on recommendation by National Medical Fellowships, Inc., and are administered by the foundation. Fellowships in the other branches of medicine and surgery are awarded by National Medical Fellowships, Inc., from funds provided by the Commonwealth Fund and are designated as "Fellowships for Advanced Training (Commonwealth Fund)." Application blanks may be secured from Mrs. Hilde Reitzes, Executive Secretary, National Medical Fellowships, Inc., 951 E. 58th St., Chicago 37. Completed applications must be received by March 1.

Society News.—Officers of the **American Hospital Association** include: Mr. Ray E. Brown, president; Dr. Albert W. Snoke, New Haven, Conn., president-elect; and Mr. John N. Hatfield, Chicago, treasurer.——Newly elected officers of the **Baltimore-Washington Dermatological Society** include: Dr. Eugene S. Bereston, Baltimore, president; Col. Franklin H. Grauer, M. C., Washington, D. C., vice-president; and Dr. Arnold H. Gould, Washington, D. C., secretary-treasurer.——Officers of the **Joint Commission on Mental Illness and Health, Inc.**, include: Dr. Kenneth E. Appel, Philadelphia, president; M. Brewster Smith, Ph.D., New York, vice-president; Mr. Charles Schlaifer, secretary-treasurer; and Dr. Leo H. Bartemeier, Baltimore, chairman of the board of trustees.——Officers of the **American College of Gastroenterology** include: Dr. James T. Nix, New Orleans, president; Dr. Arthur A. Kirchner, Los Angeles, president-elect; Drs. C. Wilmer Wirts, Philadelphia, Frank J. Borrelli, New York, Joseph Shaiken, Milwaukee, and Henry Baker, Boston, vice-presidents; and Dr. Theodore S. Heineken, Bloomfield, N. J., secretary.——Officers of the **American Congress of Physical Medicine and Rehabilitation** include: Dr. Gordon M. Martin, Rochester, Minn., president; Dr. Alvin B. C. Knudson, Washington, D. C., president-elect; Drs. Donald L. Rose, Kansas City, Kan., Arthur C. Jones, Portland, Ore., Frederic J. Kottke, Minneapolis, Donald A. Covalt, New York, and Donald J. Erickson, Rochester, Minn., vice-presidents; Dr. Frances Baker, San Mateo, Calif., secretary; and Dr. Frank H. Krusen, Rochester, Minn., treasurer. At its meeting in Atlantic City, Sept. 10-14, the congress awarded gold keys for distinguished service to: (1) Dr. Walter M. Solomon, posthumously; (2) Dr. Robert L. Bennett, Warm Springs, Ga.; and (3) Dr. Earl C. Elkins, Rochester, Minn. Dr. Shyh-Jong Yue, New York City, won the annual essay award for his paper "Arthroplasty of the Hip, Its Pre- and Post-Operative Management."——Newly elected officers of the **American Heart Association** include: Dr. Irvine H. Page, Cleveland, president; Dr. Edgar V. Allen, Rochester, Minn., president-elect; and Drs. Eugene B. Ferris, Atlanta, Ga., Louis E. Martin, Los Angeles, and David D. Rutstein and Robert W. Wilkins, Boston, vice-presidents.——Officers of the **American Board of Anesthesiology** include Dr. Rolland J. Whitacre, Cleveland, president; Dr. Donald L. Burdick, New York, vice-president; and Dr. Curtiss B. Hickcox, Hartford, Conn., secretary-treasurer.

CORRECTIONS

Manual for Artificial Respiration.—In the article "A New Method of Manual Artificial Respiration for Infants and Small Children" in The Journal, Oct. 22, 1955, in the last line of the right-hand column, page 761, (fig. 2*A*) should have been (fig. 3*A*).

Dysmenorrhea.—In the query entitled "Dysmenorrhea" in The Journal, Oct. 22, 1955, page 829, in the 10th from the last line, it is stated that "pain does not occur with an ovulatory cycle." This passage should have read "pain does not occur with an anovulatory cycle."

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

1957 Clinical Meeting, Philadelphia, Dec. 3-6.

1958 Annual Meeting, San Francisco, June 23-27.

Annual Congress on Industrial Health, Sheraton-Cadillac Hotel, Detroit, Jan. 23-24. Mr. Clark D. Bridges, 535 N. Dearborn St., Chicago 10, Acting Secretary.

Annual Congress on Medical Education and Licensure, Palmer House, Chicago, Feb. 11-14. Dr. Edward L. Turner, 535 North Dearborn St., Chicago 10, Secretary.

American Academy of Allergy, Chase Hotel, St. Louis, Feb. 6-8. Dr. Francis C. Lowell, 65 East Newton St., Boston, Secretary.

American Academy of Orthopaedic Surgeons, Palmer House, Chicago, Jan. 28-Feb. 2. Dr. John R. Norcross, 122 South Michigan Blvd., Chicago 3, Secretary.

American College of Radiology, Drake Hotel, Chicago, Feb. 10-11. Mr. William C. Stronach, 20 North Wacker Drive, Chicago 6, Executive Secretary.

American Society for Surgery of the Hand, Chicago, Jan. 27. Dr. George V. Webster, 1145 East Green St., Pasadena 1, Calif., Secretary.

Eastern Section, American Laryngological, Rhinological and Otological Society, Boston, Jan. 13. Dr. John A. Murtagh, Dartmouth College, Hanover, N. H., Vice President.

Los Angeles Midwinter Medical Convention, Biltmore Hotel, Los Angeles, Jan. 3-5. Dr. Paul D. Foster, 1925 Wilshire Blvd., Los Angeles 58, General Chairman.

Medical Society Executives Conference, Drake Hotel, Chicago, Feb. 6-8. Mr. H. Martin Baker, 1102 South Hillside, Wichita 17, Kansas, Secretary.

Middle Section, American Laryngological, Rhinological and Otological Society, Netherland Plaza, Cincinnati, Jan. 16. Dr. William H. Craddock, 2328 Auburn Ave., Cincinnati 19, Vice President.

Neurosurgical Society of America, Hotel Key Biscayne, Key Biscayne, Miami, Fla., Jan. 18-21. Dr. Lester A. Mount, 700 West 168th St., New York 32, Secretary.

Northwest Society for Clinical Research, University of Oregon Medical School, Portland, Ore., Jan 21. Dr. Arthur L. Rogers, 1216 S.W. Yamhill St., Portland 5, Ore., Secretary.

Regional Meetings, American College of Physicians:

- Shreveport, La., Jan. 14. Dr. M. D. Hargrove, 803 Jordan St., Shreveport, La., Governor.
- Philadelphia, Jan. 20. Dr. Thomas M. McMillan, 330 South 9th St., Philadelphia 7, Governor.
- Saskatoon, Sask., Feb. 3-4. Dr. C. H. A. Walton, Winnipeg Clinic, Winnipeg, Man., Canada, Governor.
- Tucson, Ariz., Feb. 11. Dr. Leslie R. Kober, 15 East Monroe St., Phoenix, Ariz., Governor.

Sectional Meetings, American College of Surgeons:

Jacksonville, Fla., Hotel George Washington, Jan. 16-18. Dr. Kenneth A. Morris, 2522 Oak St., Jacksonville 4, Fla., Chairman.

Society of University Surgeons, Hotel Claypool, Indianapolis, Feb. 8-10. Dr. C. Rollins Hanlon, 1325 South Grand Blvd., St. Louis 4, Secretary.

South Atlantic Association of Obstetricians and Gynecologists, Hollywood Beach Hotel, Hollywood, Fla., Jan. 28-Feb. 1. Dr. C. H. Mauzy, Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

Southern Section, American Federation for Clinical Research, Jung Hotel, New Orleans, Jan. 20. *Dr. John H. Moyer, 1200 M.D. Anderson Blvd.*, Houston, Texas, Secretary.

Southern Section, American Laryngological, Rhinological and Otological Society, The Shamrock, Houston, Texas, Jan. 27-28. Dr. J. M. Robison, 1304 Walker Ave., Houston 2, Texas, Chairman.

Western Section, American Federation for Clinical Research, Golden Bough Theater, Carmel, Calif., Jan. 26. Dr. Charles M. Grossman, 301 Selling Bldg., Portland 5, Ore., Secretary.

Western Section, American Laryngological, Rhinological and Otological Society, County Medical Society Bldg., San Francisco, Jan. 21. Dr. David D. DeWeese, 1216 S. W. Yamhill St., Portland, Ore., Vice President.

Western Society for Clinical Research, Carmel-by-the-Sea, Calif., Jan. 27-28. Dr. Arthur J. Seaman, University of Oregon Medical School, Portland 1, Ore., Secretary.

FOREIGN AND INTERNATIONAL

All India Medical Conference, Jaipur, India, Dec. 26-28. Dr. B. N. Consul, Association Bldg., S.M.S. Hospital Premises, Jaipur, India, Organizing Secretary.

Canadian Medical Association, Quebec, P. Q., Canada, June 10-14, 1956. Dr. Arthur D. Kelly, 150 St. George St., Toronto 5, Ont., Canada, Secretary.

Conference of International Union for Health Education of the Public, Rome, Italy, April 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1^{er}, France, Secretary-General.

Congress of International Anesthesia Research Society, Miami Beach, Fla., U.S.A., April 9-12, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, *Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.*

Congress of International Society of Hematology, Hotel Somerset, Boston, Mass., U.S.A., Aug. 27-Sept. 1, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, Sept. 12-15, 1956. Prof. Umberto Serafini, Instituto de Patologia Medica, Viale Morgagni, Florence, Italy, Secretary-General.

European Congress of Cardiology, Stockholm, Sweden, Sept. 10-14, 1956. Dr. Karl Erik Grewin, Sodersjukhuset, Stockholm, Sweden, General Secretary.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May, 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik, Hamburg-Eppendorf, Germany.

Inter-American Congress of Cardiology, Havana, Cuba, Nov. 4-10, 1956. For information address: Dr. Ramon Aixala, Apartado 2108, Havana, Cuba.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Congress Against Alcoholism, Istanbul, Turkey, Sept. 10-15, 1956. For information address: International contre l'Alcoolisme, Case Gare 49, Lausanne, Switzerland.

International Congress on Animal Reproduction, Arts School, University of Cambridge, Cambridge, England, June 25-30, 1956. Dr. Joseph Edwards, Production Division, Milk Marketing Board, Thames Ditton, Surrey, England, Hon. Secretary.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress of Dietetics, Congress Palace, Esposizione Universale Roma, Rome, Italy, Sept. 10-14, 1956. Prof. E. Serianni, Associazione Dietetica, Italiana, via dei Penitenzieri N. 13, Rome, Italy, Secretary General.

International Congress on *Diseases of the Chest, Cologne, Germany,* Aug. 19-23, 1956. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, U. S. A., Executive Director.

International Congress of *Entomology*, Montreal, Canada, Aug. 17-25, 1956. Mr. J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ont., Canada, Secretary.

International Congress of Gastroenterology, London, England, July 18-21, 1956. Mr. Hermon Taylor, London Hospital, White Chapel, *London E.1, England, Honorable Secretary.*

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Human Genetics, Copenhagen, Denmark, Aug. 1-6, 1956. For information address: The University Institute for Human Genetics, Tagensvej 14, *Copenhagen N, Denmark.*

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, *Madrid, Spain, Secretaries.*

International Congress of International College of Surgeons, Palmer House, Chicago, Illinois, U. S. A., Sept. 9-13, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Dr. Valente, 41 Avenue Verdi, Montecatini Terme, Italy, Secretary-General.

International Congress *of Paediatrics*, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns *amts sygehus i* Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for *Physical* Therapy, Hotel Statler, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International Genetics Symposium, Tokyo and Kyoto, Japan, Sept. 6-12, 1956. For information address: Secretary, International Genetics Symposium, Science Council of Japan, Ueno Park, Tokyo, Japan.

International Physiological Congress, Brussels, Belgium, July 29-*Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de* Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

Latin American Congress of Physical Medicine, San Juan, Puerto Rico and Curacao, N.W.I., Jan. 29-Feb. 8, 1956. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York 21, New York, U. S. A., Executive Director.

Medical Women's International Association, Extraordinary General Assembly, Burgenstock, Nidwalden, Switzerland, Sept. 21-23, 1956. Dr. Janet Aitken, 30a Acacia Road, London N.W. 1, England, Secretary.

National Congress of Pediatrics, Cuidad Universitaria, Mexico D.F., Mexico, May 1-5, 1956. Dr. Ignacio Avila Cisneros, Calzada de Madereros No. 240, Mexico 18, D.F., Mexico, Coordinator.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P. O Box 672, Cairns, N.Q., Australia, Secretary.

Pan-American Academy of General Practice, San Juan, Puerto Rico and Curacao, N.W.I., Jan. 29-Feb. 8, 1956. Dr. Arturo Martinez, 54 East 72d St., New York 21, New York, U. S. A., Secretary.

Pan American Congress of Gastroenterology, Havana, Cuba, Jan. 20-27, 1956. For information address: Dr. Norberto M. Stapler, 1267 J. E. Uriburu, Buenos Aires, Argentine, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, San Juan, Puerto Rico, April 8-12, 1956. Dr. C. E. Munoz MacCormick, Apartado 9111, Santurce 29, Puerto Rico, Secretary General.

Pan American *Medical* Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

World Medical Association, Havana, Cuba, Oct. 9-15, 1956. Dr. Louis H. Bauer, 345 East 46th St., New York 17, New York, *U. S. A.*, Secretary-General.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: Various Centers. April 24-25 (Part II); June 19-20 (Parts I and II); September 4-5 (Part I). Candidates may file applications at any time but they must be received at least six weeks before the date of the examination for which application is made. New candidates should apply by formal registration; registered candidates may notify the board, indicating desired location, date and candidate number. Ex. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination* Montgomery, June 19-21. Sec., Dr. D G. Gill, State Office Bldg., Montgomery.

Arizona:* *Examination.* Phoenix, Jan. 18-19. *Reciprocity.* Phoenix, Jan. 21. Sec., Dr. M. R. Richter, 411 Security Bldg., Phoenix.

Delaware: *Examination.* Dover, Jan. 10-12. *Reciprocity.* Dover, Jan. 19. Sec., Dr. Joseph S. McDaniel, Dover.

Georgia: *Examination and Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Idaho: *Examination and Reciprocity.* Boise, Jan. 9-11. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Illinois: *Examination and Reciprocity.* Chicago, Jan. 24-26. Supt. of Regis., Mr. Frederic B. Selcke, Capitol Building, Springfield.

Indiana: *Examination.* Indianapolis, June. Exec. Sec., Miss Ruth V. Kirk, 538 K. of P. Bldg., Indianapolis.

Maine: *Examination.* Portland, Mar. 13-14. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Michigan:* *Examination.* Ann Arbor and Detroit, June 13-15 (Tentative). Sec., Dr. E. C. Swanson, 118 Stevens T. Mason Bldg., Lansing.

Minnesota:* *Examination.* Minneapolis, Jan. 18-20. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 2.

Montana: *Examination and Reciprocity.* Helena, April 3-4. Sec., Dr. S. A. Cooney, 7 West 6th Ave., Helena.

Nebraska:* *Examination.* Omaha, June 18-20. Director, Bureau of Examining Boards, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada:* *Examination and Reciprocity.* Reno, Jan. 3. Sec., Dr. G. H. Ross, 112 N. Curry St., Carson City.

New Hampshire: *Examination and Endorsement.* Concord, March 14. Sec., Dr. John S. Wheeler, 107 State House, Concord.

New York: *Examination.* Albany, Buffalo, Syracuse and New York, Feb. 7-10. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany.

North Carolina: *Reciprocity.* Durham, Jan. 16. Sec., Dr. Joseph J. Combs, Professional Bldg., Raleigh.

North Dakota: *Examination.* Grand Forks, Jan. 4-6. *Reciprocity.* Grand Forks, Jan. 7. Sec., Dr. C. J. Glaspel, Box 228, Grafton.

Oklahoma:* *Examination.* Oklahoma City, June 5-6. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

Oregon:* *Examination.* Portland, Jan. 16-17. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

Pennsylvania: *Examination.* Philadelphia, January. Acting Sec., Miss Marguerite G. Steiner, Box 911, Harrisburg.

Rhode Island:* *Examination.* Providence, Jan. 5-6. Admin. of Professional Education, Mr. Thomas B. Casey, Room 366, State Office Bldg., Providence 2.

South Dakota:* *Examination.* Sioux Falls, Jan. 17-18. Exec. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Tennessee:* *Examination.* Memphis, Dec. 21-22. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

Washington:* *Examination.* Seattle, Jan. 9-11. *Reciprocity.* Seattle, Jan. 8. Secretary, Department of Licenses, Mr. Edward C. Dohm, Olympia.

West Virginia: *Examination and Reciprocity.* Charleston, Jan. 9-11. Sec., Dr. Newman H. Dyer, State Office Bldg., No. 3, Charleston 5.

Wisconsin:* *Reciprocity and Examination.* Madison, Jan. 10-12; *Reciprocity,* Madison, Spring; *Reciprocity and Examination.* Milwaukee, July 10-12. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., Madison.

Wyoming: *Examination and Endorsement.* Cheyenne, Feb. 6. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

Alaska:* On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

Guam. *Endorsement.* Agana, Jan. 2. The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Sec., Dr. John E. Kennedy, Agana.

Hawaii: *Examination.* Honolulu, Jan. 9-12. Sec., Dr. I. L. Tilden, 1020 Kapiolani, St., Honolulu.

Puerto Rico: *Examination.* San Juan, Mar. 6-11. Sec., Dr. Joaquin Mercado Cruz, Box 3271, San Juan.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arizona: *Examination and Reciprocity.* Tucson, Dec. 20. Sec., Dr. H. D. Rhodes, University of Arizona, Tucson.

Arkansas: *Examination.* Little Rock, May 4-5. Sec., Mr. S. C. Dellinger, Zoology Department, University of Arkansas, Fayetteville.

Connecticut: *Examination.* New Haven, Feb. 11. Address: State Board of Healing Arts, 258 Bradley St., New Haven 10.

District of Columbia: *Examination.* Washington, April 23-24. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave. N.W., Washington 6.

Iowa: *Examination.* Des Moines, Jan. 10. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination.* Detroit and Ann Arbor, Feb. 10-11. Sec., Mrs. Anne Baker, 410 W. Michigan Ave., Lansing 15.

Minnesota: *Examination.* Minneapolis, Jan. 3-4. Sec., Dr. Raymond N. Bieter, 126 Millard Hall, University of Minnesota, Minneapolis.

Nebraska: *Examination.* Omaha, Jan. 10-11. Sec., Mr. Husted K. Watson, Room 1009, State Capitol Bldg., Lincoln 9.

Nevada: *Examination.* Reno, Jan. 3. Sec., Dr. Donald G. Cooney, Box 9005, University Station, Reno.

New Mexico: *Examination.* Santa Fe, Jan. 15. Sec., Mrs. Marguerite Cantrell, Box 1522, Santa Fe.

Oklahoma: *Examination.* Oklahoma City, Mar. 30-31. Sec., Dr. E F. Lester, 813 Braniff Bldg., Oklahoma City.

Oregon: *Examination.* Portland, March 3; June 2, Sept. 8 and Dec. 1. Dr. Earl M. Pallett, Sec., State Board of Higher Education, Eugene.

Tennessee: *Examination.* Memphis, Dec. 30-31. Sec., Mr. O. W. Hyman, 62 S. Dunlap St., Memphis 3.

Texas: *Examination.* Galveston, Dallas, and such other locations as are warranted, April. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

Washington: *Examination.* Seattle, Jan. 4-5. Secretary, Department of Licenses, Mr. Edward C. Dohm, Olympia.

Wisconsin: Madison, Apr. 7. Final date for filing application is Mar. 30. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

Alaska: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

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*Basic Science Certificate required.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of The Journal. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, Dec. 26

NBC-TV, 11 a. m.-12 noon EST. "Medical and Health News with Howard Whitman," a segment of the "Home" show.

NBC-TV, 9 p. m. EST. "Medic" tells the story of aviation medicine and of Dr. William Lovelace, the Army doctor who parachuted from a plane eight miles above the earth to test the effects of high altitude jumps on the human system.

ABC-TV, 9:30 p. m. EST. "Medical Horizons" takes its remote camera to New York University-Bellevue Medical Center to show how infectious diseases are cared for in a general hospital.

MAGAZINES

Life, Dec. 3, 1955

"Comfort as Sorrow Comes"

A photo-text article on the plan used by the City of Hope Medical Center, Los Angeles, to help parents whose children are doomed with leukemia. Mothers and fathers are put to work in the hospital wards.

Town Journal, December, 1955

"To the Hospital A-Flyin'," by Leverett G. Richards

Residents of Medford, Ore., sponsor a nonprofit air ambulance to fly patients to Portland when big city hospital facilities are needed.

Ladies Home Journal, December, 1955

"Better Health for Babies," by Margaret Hickey

The Child Health Association, a major project of the Spokane Junior League, maintains a well-baby clinic, with the help of pediatricians who donate their time. Of some 2,000 infants and preschool children examined last year, nearly half were found to have defects ranging from eczema to mental retardation.

GOVERNMENT SERVICES

AIR FORCE

Appoint Assistant for Reserve Affairs.—The surgeon general has announced that Col. Paul Goodwin, M. C., U. S. A. F., has been named assistant for reserve affairs. Formerly Colonel Goodwin was wing surgeon of the Alabama Air National Guard's 117th tactical reconnaisance wing. His career as a citizen soldier dates back to 1925 in the citizens military training corps, followed by reserve officer training at Georgetown College, Washington, D. C., and the medical ROTC at Georgetown University School of Medicine. He entered active duty as a major in the Medical Corps in 1941 and served in the U. S. and South Pacific during the war. He was separated in 1946 from the First Air Force with a rank of lieutenant colonel. An active reservist since then, he was the first U. S. Medical Reserve officer to complete extension courses of the command and general staff course, Medical Field Service School, and of the economic mobilization course, Industrial College of the Armed Forces. He is a graduate of the field officer course of the Air University Extension Course Institute, and recently took a special course for civil defense administrators at the National Civil Defense Training Center in Maryland.

ARMY

Major General Martin Retires.—Major Gen. Joseph I. Martin, M. C., retired from the Army Nov. 30 after over 37 years' service. General Martin recently completed a tour of duty as chief surgeon of the U. S. Army Forces, Europe. For the past year he served as president of the association of military surgeons of the United States. He is a recipient of the Distinguished Service medal, the Legion of Merit, and of decorations for distinguished service from seven foreign nations.

NAVY

Clinical Clerkship and Senior Student Program for Ensigns.—Second and third year medical students commissioned as ensigns, 1995 U. S. N. R., are eligible for up to 60 days' active duty for training, with full pay and allowances of their rank while so serving at any teaching naval hospital designated by the chief, bureau of medicine and surgery. Commencing July 1 of each year, this clinical clerkship program is available to the medical student during his vacation from medical school. It provides orientation into naval medicine, rotation through the major professional services, and performance of on-the-job training duties at a naval teaching hospital. Each officer is eligible for only one tour of this duty during his tenure as an ensign, 1995 (medical) U. S. N. R.

Third year medical students who expect to qualify for acceptance into their final year of medical school and who wish to avail themselves of the Navy's new senior medical student program should make application prior to Feb. 1, 1956; applications for this program will not be accepted after that date.

Ensigns, 1995 (medical), availing themselves of this senior medical student training and accepting an appointment in the regular Navy, will be obligated to serve on active duty for a minimum period of three years, excluding the period served as a senior medical student and in a naval internship. Applications for ensign, 1995 (medical) U. S. N. R., and the senior medical student program are currently being processed.

Elect President of Military Surgeons.—The Association of Military Surgeons of the United States on Nov. 9, 1955, elected Rear Adm. Winfred P. Dana, M. C., U. S. Navy, president of that association to succeed Major Gen. Joseph I. Martin, M. C., U. S. Army.

Retirements.—The following Medical Corps officers were placed on the retired list Oct. 1, 1955: Rear Adm. Leslie O. Stone, Rear Adm. Albert T. Walker, and Capt. Anton Zikmund.

VETERANS ADMINISTRATION

Personal.—Dr. Endre K. Brunner, manager of the VA hospital in Manchester, N. H., has been appointed manager of the VA hospital in the Bronx, N. Y., succeeding Dr. John G. Hood, who was named area medical director for VA with headquarters in Columbus, Ohio.

The Veteran Population.—The statistical summary of veterans' activities shows that the number of veterans in civil life at the end of October was 22,051,000, an increase of 42,000 since October, 1954. The average daily load of patients was given as 113,736, of which 110,356 were in VA hospitals and the remaining 3,380 in non-VA hospitals. There was given also an average daily member load of veterans of all wars under domiciliary care of 17,206, an increase of 346 under domiciliary care since October, 1954. At the end of October, 1955, there were five new VA hospitals under construction. A total of 61 new VA hospitals had been completed up to the end of that month.

PUBLIC HEALTH SERVICE

Appoint Reserve Officers.—The Public Health Service announced on Dec. 3 the appointment of 86 physicians, nurses, sanitary engineers, dentists, and pharmacists to the inactive reserve of its commissioned officer corps. The new officers are among the most recent of the nation's professional health specialists to be appointed under the service's program to expand its commissioned reserve by organizing and training health and medical personnel throughout the country and its territories for emergency duty in times of national crisis. Officers of the commissioned reserve are trained to serve in critical situations affecting the health and well-being of large numbers of people. These officers will serve in the capacities for which their professional training and experience have fitted them. They will be called out principally to reinforce the staffs of official state and local health agencies and to augment the Public Health Service operating staff.

MISCELLANEOUS

Postdoctoral Fellowships in Science.—The National Science Foundation plans to award in 1956 about 40 senior postdoctoral fellowships to individuals planning additional study and/or research. The purpose is to provide an opportunity for individuals several years past the doctoral degree to supplement their training; the fellowships are therefore not thought of as designed to provide support for research projects as such. National Science Foundation senior postdoctoral fellowships are available to citizens of the United States who have demonstrated special aptitude for advanced training and productive scholarship and who have held a doctoral degree in one of the fields of basic science for a minimum of five years, or who have had the equivalent in research experience and training.

Annual awards for senior postdoctoral fellows are of the salary-matching type. No award, however, will be less than $4,000 per annum before adjustment and none will exceed $10,000 per annum. An allowance will be paid to aid in defraying the costs of travel undertaken in the fulfillment of the fellowship study plan. An additional allowance may be made to defray costs of tuition, fees, unusual research expenses, special equipment, and special travel in an amount not to exceed $600 for each full year of tenure. A National Science Foundation fellow is required to devote full time to scientific study or scientific research during the tenure of his fellowship. Applicants must submit transcripts of their college and university records, and a plan of study containing justification of the tenure desired and any unusual travel plans. The affidavit and loyalty oath required by section 15 (d) of the National Science Foundation Act, 42 U. S. C. 1874 (d) will constitute part of the application.

A fellow may pursue his fellowship at any accredited nonprofit institution of higher education approved by the National Science Foundation. Application materials may be obtained from the Division of Scientific Personnel and Education, National Science Foundation, Washington 25, D. C. Completed materials must be received not later than Jan. 16, 1956. Fellowships will be awarded on March 20, 1956.

DEATHS

Smith, James Washington ⊕ New York City; born in Washington, D. C., May 16, 1893; University and Bellevue Hospital Medical College, New York City, 1917; clinical professor of ophthalmology at the Post-Graduate Medical School of the New York University-Bellevue Medical Center; served on the faculty of his alma mater; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology and the Association for Research in Ophthalmology; fellow of the American College of Surgeons and the New York Academy of Medicine; past-president of the New York Society of Clinical Ophthalmology; past-president and secretary of the New York University College of Medicine Alumni; in June, 1935, New York University presented him with the Alumni Meritorious Service award; vice-president of the board of trustees of Phi Delta Epsilon; served during World War I; since 1933 a member of the board of visitors at Rockland State Hospital, Orangeburg; on the staffs of the Hospital for Joint Diseases, Goldwater Hospital, Nyack (N. Y.) Hospital, and University Hospital; died in the New York Hospital Oct. 24, aged 62, of coronary thrombosis.

Shipley, Arthur Marriott, Baltimore; born in Harmans, Md., Jan. 8, 1878; University of Maryland School of Medicine, Baltimore, 1902; professor of surgery emeritus at his alma mater, now known as the University of Maryland School of Medicine and College of Physicians and Surgeons, where he was at one time associate professor of surgery, professor of clinical surgery, and for many years professor of surgery and head of the department; served in France during World War I; member of the founders group of the American Board of Surgery; past-president of the Medical and Chirurgical Faculty of Maryland and the Baltimore City Medical Society; member and at one time vice-president of the American Surgical Association; an associate member of the American Medical Association; member of the Southern Surgical Association and the American Association for Thoracic Surgery; fellow of the American College of Surgeons; served as consultant for the city health department; superintendent of the University of Maryland Hospital from 1904 to 1908 and later surgeon-in-chief; surgeon-in-chief for the Baltimore City Hospital for many years; died Oct. 16, aged 77, of arteriosclerotic heart disease.

Chesley, Albert Justus ⊕ Minneapolis; born in Minneapolis Sept. 12, 1877; University of Minnesota College of Medicine and Surgery, Minneapolis, 1907; joined the laboratory service of the Minnesota State Board of Health in 1902, serving in this capacity until 1910, when he became epidemiologist, later director of the division of epidemiology, director of the division of preventable diseases, and since 1921 secretary and executive officer; clinical professor emeritus of public health (public health administration and epidemiology) at his alma mater, now known as the University of Minnesota Medical School; past-president of the American Public Health Association; past-president and for many years secretary of the Conference of State and Provincial Health Authorities of North America; member of the Veterans of Foreign Wars and Nu Sigma Nu; veteran of the Spanish-American War; served as public health expert to the American Red Cross in France and in Poland, where he was chief of staff and commissioner from 1918 to 1920; specialist certified by the American Board of Preventive Medicine; died in the Mayo Clinic, Rochester, Minn., Oct. 17, aged 78, of coronary thrombosis.

Moncure, Philip St. Leger ⊕ Norfolk, Va.; born in Ruther Glen in 1867; Medical College of Virginia, Richmond, 1897; fellow of the American College of Surgeons; past-president of the Norfolk County Medical Society and the Medical Society of Virginia; member of the House of Delegates of the American Medical Association in 1935; charter member of the Seaboard Medical Association; for many years member of the state board of medical examiners; served on the staffs of Norfolk General, DePaul, and Leigh Memorial hospitals; died in Ruther Glen, his ancestral home in Caroline County, Sept. 24, aged 88, of cerebral hemorrhage.

Barker, Myron Joseph ⊕ Lakewood, Ohio; Western Reserve University School of Medicine, Cleveland, 1935; served during World War II; on the staffs of the Lakewood (Ohio) Hospital and the Lutheran, St. John's, and Fairview Park hospitals in Cleveland; died Oct. 1, aged 45, of coronary occlusion.

Berry, George W., Moundville, Mo.; Medico-Chirurgical College of Kansas City, 1903; served as coroner of Bates County; died in the Nevada City (Mo.) Hospital July 29, aged 86, of cardiac decompensation and chronic myocardosis.

Bethea, William Spinks ⊕ Latta, S. C.; Medical College of the State of South Carolina, Charleston, 1936; fellow of the American Academy of General Practice; three times president of the Dillon County Medical Association; past-president of the Pee Dee Medical Association; served during World War II; chief and past-president of the staff of St. Eugene Hospital in Dillon; died Aug. 24, aged 42, in an automobile accident.

Birbeck, Albert Franklin, Longview, Wash.; McGill University Faculty of Medicine, Montreal, Canada, 1924; served with the Canadian Army during World War I; on the staff of the Cowlitz General Hospital and St. John's Hospital; died Sept. 27, aged 57, of coronary thrombosis.

Bond, Russell Conwell ⊕ Wheeling, W. Va.; Washington University School of Medicine, St. Louis, 1925; specialist certified by the American Board of Pediatrics; fellow of the American Academy of Pediatrics; served as secretary and president of the Ohio County Medical Society; pediatric consultant to Reynolds Memorial Hospital in Glen Dale; senior member of the pediatric staffs at Ohio Valley General and Wheeling hospitals; died Oct. 22, aged 54, of coronary occlusion.

Capps, Joseph Marshall, Kenton, Tenn.; University of Nashville Medical Department, 1895; Vanderbilt University School of Medicine, Nashville, 1895; died in the Obion County Hospital, Union City, Sept. 9, aged 87, of virus pneumonia and chronic myocarditis.

Cogen, Murray ⊕ Lawrence, N. Y.; L.R.C.P., Edinburgh, L.R.C.S., Edinburgh, and R.F.P.S., Glasgow, 1940; member of the American Trudeau Society and the American Academy of General Practice; served during World War II; on the staff of St. Joseph's Hospital in Far Rockaway; died Sept. 20, aged 43, of coronary thrombosis.

Coutts, Gordon Shelswell ⊕ Cape Vincent, N. Y.; University of Toronto Faculty of Medicine, Toronto, Canada, 1925; health officer for the town of Cape Vincent and school physician at Cape Vincent Central School; died Aug. 12, aged 54, of ventricular fibrillation and rheumatic myocarditis.

Donelson, Kater ⊕ Inkster, Mich.; Wayne University College of Medicine, Detroit, 1944; interned at the City of Detroit Receiving Hospital in Detroit, where he was formerly a resident; served as a captain in the Medical Corps, Army of the United States; died in the Wayne County General Hospital, Eloise, Sept. 26, aged 45, of coronary thrombosis.

Drew, John Almus, Bradenton, Fla.; University of Vermont College of Medicine, Burlington, 1895; died in Tampa Sept. 30, aged 85, of cerebral hemorrhage.

Duckwall, Fred M. ⊕ Kingsport, Tenn.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1928; director of the Kingsport National Bank and president of the Medical Arts Building, Inc.; president and charter member of the medical staff of the Holston Valley Community Hospital, where he died Sept. 27, aged 54, of coronary thrombosis.

⊕ Indicates Member of the American Medical Association.

Farrell, Chalmers Gregg ⊕ Gardiner, Maine; Starling-Ohio Medical College, Columbus, 1911; died in Togus Sept. 30, aged 69, *of anoxemia.*

Friedman, Jack ⊕ Minneapolis; University of Illinois College of Medicine, Chicago, 1939; clinical assistant professor of radiology at the University of Minnesota Graduate School, Minneapolis-Rochester; specialist certified by the American Board of Radiology; member of the American Roentgen Ray Society, Radiological Society of North America, and the American College of Radiology; served during World War II; on the staff of the Mount Sinai Hospital, where he died Sept. 29, aged 44, of adenocarcinoma of the upper lip.

Garfield, Herman Joseph ⊕ Philadelphia; Temple University School of Medicine, Philadelphia, 1929; served with the communicable disease section of the city health department; on the staff of the Albert Einstein Medical Center-Northern Division, where he died recently, aged 51.

Hoff, Einar, Seattle; University of Illinois College of Medicine, Chicago, 1915; served during World War I; died in Tacoma Oct. 19, aged 73, of neoplasm of the prostate gland.

Holden, William Burroughs ⊕ Portland, Ore.; Rush Medical College, Chicago, 1897; professor emeritus of surgery at the University of Oregon Medical School; member of the founders group of the American Board of Surgery; past-president of the Portland Academy of Medicine and the Multnomah County Medical Society; member of the Western Surgical Association; fellow of the American College of Surgeons; on the staff of the Portland Sanitarium and Hospital; on the consultant staff of St. Joseph's Hospital in Vancouver, Wash.; died Nov. 1, aged 82.

Jack, John Barnes ⊕ Auburn, Neb.; Rush Medical College, Chicago, 1895; member of the Illinois State Medical Society; died Nov. 5, aged 83.

Keene, Ralph Kendall ⊕ Spokane, Wash.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1897; died Oct. 26, aged 87, of carcinoma of the prostate.

Koons, Robert Ottens, Shickshinny, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; an associate member of the American Medical Association; died Nov. 9, aged 80.

Landon, Herbert William ⊕ Monroe, Mich.; Detroit College of Medicine, 1898; died in the Mercy Hospital Sept. 27, aged 82, of acute coronary occlusion and pulmonary tuberculosis.

Lawson, Lawrence Wells, Logan, W. Va.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1922; died in Spencer Nov. 3, aged 61, of a heart attack.

Lehmann, Theodore Alexander, Long Island City, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1895; an associate member of the American Medical Association; served on the staff of St. Vincent's Hospital in New York City; died in a nursing home in College Point Oct. 23, aged 85, of coronary thrombosis.

MacGregor, Mary Elizabeth Childs ⊕ Chatham, N. J.; Cornell University Medical College, New York City, 1922; served as president of the board of trustees of the Chatham Library; on the staff of the New York Infirmary in New York City; for many years school physician for Chatham schools; died Oct. 22, aged 59, of uremia.

Magee, Hosea Frank ⊕ Jackson, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1915; in 1918 became health officer of Jackson; served as medical examiner for the draft boards during World Wars I and II; for many years physician for Millsaps College and the Methodist Home; formerly superintendent of the old Charity Hospital; on the staffs of St. Dominic's Hospital and the Baptist Hospital, where he died Oct. 17, aged 71.

Merriam, Gordon ⊕ Fairview, Mont.; Cornell University Medical College, New York City, 1946; certified by the National Board of Medical Examiners; member of the American Academy of General Practice; served as a captain in the Medical Corps, U. S. Army; secretary of the staff, Memorial Hospital, Sidney; died Oct. 4, aged 32, of coronary disease.

Mulvey, William Aloysius ⊕ East Greenwich, R. I.; Georgetown University School of Medicine, Washington, D. C., 1910; member of the Massachusetts Medical Society; served overseas during World War I; on the staffs of the St. Joseph's, Rhode Island, Roger Williams General, and Charles V. Chapin hospitals in Providence; died in the Jane Brown Memorial Hospital in Providence Oct. 9, aged 70.

Norris, Edgar Hughes ⊕ Detroit; University of Minnesota Medical School, Minneapolis, 1919; served as professor of pathology and dean at Wayne University College of Medicine and executive director of medical sciences of the Medical Science Center; member of the American Association of Pathologists and Bacteriologists; fellow of the American College of Surgeons; died Oct. 6, aged 61.

Palmer, Paul Whitney ⊕ Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1921; on the staff of the Mount Carmel Hospital; chief and chairman of the surgical staff at Grant Hospital, where he was a senior member and where he died Oct. 31, aged 61, of cerebral hemorrhage.

Rochman, Robert, University City, Mo.; Washington University School of Medicine, St. Louis, 1950; died in the Barnes Hospital, St. Louis, Sept. 20, aged 33, of lymphosarcoma.

Royse, James G., Fort Worth, Texas; Medical College of Indiana, Indianapolis, 1900; at one time associated with the Indiana State Board of Health; died Aug. 15, aged 83.

Shuler, Ashley Cooper ⊕ Carlsbad, N. Mex.; University of Tennessee College of Medicine, Memphis, 1925; died Oct. 7, aged 57, of coronary infarction.

Stockler, Jules, Philadelphia; Temple University School of Medicine, Philadelphia, 1950; interned at the Cedars of Lebanon Hospital in Los Angeles; served a residency at the Veterans Administration Hospital in Long Beach, Calif., and the Philadelphia Psychiatric Hospital; certified by the National Board of Medical Examiners; died in Claremore, Okla., Sept. 18, aged 28.

Taylor, Frederick Raymond ⊕ High Point, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1913; specialist certified by the American Board of Internal Medicine; professor of medical literature and associate professor of clinical internal medicine at the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem; served during World War I; fellow of the American College of Physicians; on the honorary staff, High Point Memorial Hospital, where he died Nov. 1, aged 68, of cardiac decompensation and arteriosclerotic heart disease.

Theobalds, John Anthony ⊕ New York City; Université de Lyon Faculté de Médecine et de Pharmacie, France, 1932; on the staff of the Mount Morris Park Hospital; died in Tunkhannock, Pa., Sept. 14, aged 55, of carcinoma.

Uloth, Milton J. ⊕ Ortonville, Mich.; Michigan College of Medicine and Surgery, Detroit, 1902; member of the American Academy of General Practice; on the staff of the Goodrich (Mich.) General Hospital, where he died Nov. 2, aged 79.

Wadsworth, Harvey Bryan, New Bern, N. C.; Johns Hopkins University School of Medicine, Baltimore, 1918; member of the Medical Society of the State of North Carolina; chief of staff at St. Luke's Hospital, where he died Sept. 1, aged 68, of myocardial infarction and coronary thrombosis.

Warner, Earl Albert, Blue Springs, Neb.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1905; on the staff of the Mennonite Deaconess Home and Hospital in Beatrice; died Oct. 11, aged 79, of coronary occlusion.

Wilson, Wirt B., Charleston, W. Va.; Maryland Medical College, Baltimore, 1911; an associate member of the American Medical Association; fellow of the American College of Surgeons; on the staffs of the Charleston General, St. Francis, Kanawha Valley, and McMillan hospitals; died Nov. 4, aged 74, of a cerebral hemorrhage.

Zipser, Max Armand, New York City; Bellevue Hospital Medical College, New York City, 1891; an associate member of the American Medical Association; died in St. Luke's Hospital Oct. 23, aged 86.

FOREIGN LETTERS

CANADA

Health Insurance.—In the last few months there has been much agitation for an extension of prepaid medical care plans, with payment of premiums for indigent persons by the provincial governments. In Ottawa on Oct. 4 the 10 premiers of the provinces met with the Prime Minister to discuss interprovincial problems. The Premier of Ontario presented a five-point plan that was based on an assumption that the federal government would have 60% financial participation and included a scheme for diagnostic services, home care, meeting of extraordinary hospital costs, hospital maternity care, and full hospital insurance to be implemented by stages. The provincial government and the municipality would pay premiums for indigent persons, and payroll deductions would take care of employees. The self-employed would be brought in later. Such a plan would cost about 169 million dollars in Ontario in 1957. A federal estimate for health insurance services has been given as $38 per capita, but Ontario officials estimate that in 1957 the cost of health care in their province (exclusive of mental health and tuberculosis services) will be $44 per capita.

There is a wide difference of opinion in the provinces about health insurance. At one end of the scale is the province of Quebec, which wants nothing to do with federal aid, and at the other end are provinces like Saskatechewan with going schemes, for which federal aid would be welcome. After much discussion the subject of health insurance was referred for future study to an intergovernmental committee of ministers from the provinces and the federal government, which will meet in December or January. The Prime Minister has meanwhile given an assurance that the federal government is prepared to support provincially administered health insurance schemes involving no constitutional change or interference in provincial affairs, provided a majority of the provinces representing a majority of the people are prepared to proceed.

Psychiatric Night-Treatment Center.—In anticipation of the facilities that would be available at the new Montreal General Hospital this year, a psychiatric night-treatment center was opened in the old building in 1954. The idea was to offer outpatient treatment to persons in need of psychiatric help. The facilities are comparable to those in the previously established day-treatment center, but the emphasis is on preventive psychiatry, to deal with psychoneuroses, psychosomatic disorders, and early psychoses before they have affected the patient's earning power. Patients report from Monday through Friday at 6 p. m. and leave the hospital each morning in time for work, spending the weekends in their homes. The same beds are used for three sets of patients, since they are occupied in the morning by day-center patients receiving subcoma insulin and in the afternoon by day patients or outpatients given electroconvulsive therapy. Night-center patients requiring electroconvulsive therapy are given it on Friday nights; subcoma insulin, group and individual psychotherapy, and recreational and occupational therapy are also freely employed. Subcoma insulin therapy in particular has proved of value. The staff is well satisfied with results so far. This center makes treatment possible for patients unable to afford full hospitalization or unwilling to disclose to friends and relatives their need for institutional therapy.

Poliomyelitis.—The first phase of the poliomyelitis vaccination program has been completed and is being evaluated. Somewhat under one million children, 5 through 8 years of age, have been inoculated, mostly by two injections of vaccine. Supplies of vaccine were prorated among the 10 provincial health departments and were administered in accordance with their own plans, generally to protect children in the age group with the greatest risk. Provincial programs began in April and stopped around the end of June. The incidence of poliomyelitis was relatively low this summer. Up to Oct. 8, 800 cases, of which 390 were described as paralytic, had been reported. This is only 25% of the yearly average for 1950 to 1955. The indications so far are generally favorable to the vaccine, but, because of the small numbers involved and the incomplete tabulation so far, no definite conclusion can be drawn as yet.

Montreal General Hospital.—The Montreal General Hospital was opened in 1821. Last May the old building in downtown Montreal closed its doors after transferring its remaining patients up the mountainside to a beautiful new building, which must be ranked as one of the show places of Canadian medicine. The 750-bed, 19-story hospital was officially opened on Oct. 4 by Her Royal Highness the Princess Royal, aunt to Queen Elizabeth II. The October issue of *Canadian Hospital* is entirely devoted to the hospital and its various features, and the Nov. 15 issue of the *Canadian Medical Association Journal* is also a special number, with all original articles contributed by past and present members of the hospital staff.

ENGLAND

General Practitioner Hospitals. — The annual report of the Northern Ireland Hospitals Authority for 1954 contains a copy of the report of a special committee set up to advise as to what action, if any, should be taken by the authority to increase the number of hospitals in which general practitioners may treat their patients. The committee sent a questionnaire on this subject to general practitioners, of whom there are 739 in Northern Ireland. Most of them were not in favor of additional general practitioner hospitals or of the suggestion that the authority should arrange for them to treat their patients in existing general hospitals. Of those practitioners who were willing to undertake part-time hospital duties, practically all preferred to have salaried appointments. There are now in Northern Ireland 17 general practitioners who hold regular salaried appointments in hospitals. There are also six small cottage hospitals and two small cottage maternity units in which most of the work is done by general practitioners. About 45 practitioners do such work. In eight general hospitals general practitioners deliver babies of their own patients, and in the teaching hospitals in Belfast there are a few short-term honorary appointments for general practitioners. The committee recommends that the authority should do everything in its power to provide for close cooperation between the hospital services and general medical practitioners. Many of the general practitioners are so busy that they would be able to do little, if any, hospital work. In planning for the future, however, the possibility of providing for more part-time assistantships in general practice, coupled with part-time hospital appointments, and for more opportunities for general practitioners to undertake hospital duties should be considered. The young graduate should not with finality have to make up his mind early in his career as to whether he intends to seek a career in the hospital service or in general practice. It would be advantageous if many young graduates continued to work in a hospital and sought higher qualifications in appropriate specialties with the intention of combining general practice and hospital work. Such arrangements would facilitate transfers from general practice to hospital work later. If a general practitioner has the necessary training and qualifications, there are many branches of hospital work in which he could participate on equal terms with those who devote full time to that work. Furthermore, there are many general practitioners who have not the inclination or the time to practice a specialty in a hospital but who could treat their patients hospitalized for minor illnesses.

Pregnancy in Diabetic Patients.—Disappointing results from the use of hormones in the management of pregnancy in diabetic patients are recorded in a report to the Medical Research Council

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The items in these letters are contributed by regular correspondents in the various foreign countries.

by their conference on diabetes and pregnancy (*Lancet* **2**:833, 1955). The aim of the controlled clinical trial reported was to assess the results of a dosage schedule based on orally given preparations of ethisterone, which, in combination with diethylstilbestrol, might be expected to have physiological effects similar in nature and intensity to those of the parenterally given doses of diethylstilbestrol and progesterone used by Priscilla White in 1949. The criteria for inclusion in the trial, in addition to the presence of diabetes mellitus, was that the patient not be more than 40 years of age at her last menstrual period and that the pregnancy not be more advanced than 16 weeks at the time of inclusion in the trial. Patients were not accepted for trial if gross retinal changes, persistent elevation of the diastolic pressure above 90 mm. Hg, or other general disease that would necessitate special management of the pregnancy was present. Comparable groups of patients were stratified by age and parity and randomly divided into hormone-treated (76) and nonhormone-treated (71) groups. The former received diethylstilbestrol and ethisterone orally, and the control group was given inert but otherwise identical tablets. Differences in the number of conceptions in which children were produced who survived one month after delivery, the stillbirth rate, the neonatal death rate, the abortion rate, the survival rate among viable fetuses, the mean duration of pregnancy at the time of delivery, the mean birth weights of the infants, the quality of diabetic control during pregnancy, and the distribution of complications in the two groups were all negligible. Assays designed to measure the urinary output of pregnanediol and chorionic gonadotropin were carried out in a number of patients. The results suggested that either one or the other, or both, of the preparations given orally were absorbed, but that this had no effect on the pattern of hormonal excretion associated with fetal loss. The observers concluded that diethylstilbestrol and ethisterone given by mouth in the doses used did not reduce fetal mortality in diabetic patients and had little, if any, beneficial effect on maternal health in pregnancy.

National Accident Service.—In the annual special number of the *Practitioner* (October, 1955, page 450) devoted to advances in treatment, Mr. William Gissane makes an appeal for a national accident service. His article and appeal are based on the 14 years' experience of the Birmingham Accident Hospital in the treatment of 531,000 civilian injuries of all types. Advances in the treatment of accidents depend on the institution of a completely new tempo and quality of hospital treatment services. Experienced surgeons must always be immediately available, and the same speed and quality of service also must be always available from nurses, laboratory staff (in emergency cases mainly for safe blood transfusion), radiological service, and the operating room staff. As evidence in favor of his plan, he quotes American experience in the Korean war, with fully equipped hospitals within 30 minutes' helicopter flight of the front line and the wounded under full surgical care within an hour of their wounding. In Gissane's opinion, 25 fully equipped and staffed central accident services, strategically sited throughout the country, would assure the efficient early treatment of all severely injured in this country. These should be developed in or near general and, if possible, teaching hospitals. He quotes the experience of the Birmingham Accident Hospital as demonstrating how such accident centers dealing with large numbers of injured result in a financial saving. The average cost per accident treated by the Birmingham Accident Hospital is about $14, but the average total cost of each of these accidents to the community is about $280. Thus, 5% of the total cost is for treatment. If this were 10% and the services of the hospital improved, as they should be, improvements in results obtained would result in a saving of both money and production to the community.

Survival from Cancer.—Commenting on the Registrar General's Statistical Review for 1950 and 1951, the *British Medical Journal* of Sept. 17 says in an annotation that the analysis of the cases registered in 1945 and 1946 can be regarded as an early chapter in the more complete natural history of cancer, which is being built up from the cancer registration scheme. In this volume four sites are selected for special study—the female breast, the cervix uteri, the rectum, and the skin. Age distribution and survival rates are recorded. The corrected five year survival rates for patients with primary cancers without metastases, who were treated radically, were for cancer of the breast (67%), the cervix uteri (51%), the rectum (50%), and for epithelioma of the skin (over 80%). In each age group the survival rate of patients with cancer of the breast bears no relation to the interval before treatment. Especially among the late primary cases patients appear to have a better chance if they are treated either before three months have elapsed from the appearance of the first symptom or if the growth has existed for more than a year. The survival rate for patients with early primary carcinoma of the breast who have no secondary nodes or metastases is much higher in those between 45 and 49 years of age than in any other age group. The chances of survival in patients with cancer of the cervix uteri also appear to improve with the duration of the disease in certain age groups, irrespective of whether the disease is first seen in an early or later stage. Again, in so far as cancer of the rectum is concerned, the only conclusion that can be drawn is that the chances of survival are not directly related to the time elapsing between the onset of the first symptom and the commencement of treatment.

Salmonella Organisms in Meat.—From 1950 to 1953 various materials sampled from carcasses of cattle, calves, and pigs at the time of slaughter were cultured for Salmonella organisms in abattoirs in six centers throughout the country. The subcommittee on Salmonella of the public health laboratory reports (*Month. Bull. Min. Health* **14**:132, 1955) that in cattle Salmonella dublin was the commonest type isolated, comprising 42 of 45 strains. Three strains of Salmonella typhimurium were also isolated. The isolations were from a few specimens of bile, liver, spleen, mesenteric glands, and feces, but negative results were obtained from swabbing the peritoneal surfaces of 1,518 sides of beef. No salmonella organisms were isolated from the liver or spleen of 494 calves. In pigs, S. dublin was isolated in one center from 6 of 452 samples of bile and from the liver, spleen, and glands of one of 27 pigs. This organism was not isolated by the other laboratories, which obtained negative results from 500 samples of bile, 1,130 of liver, 687 of spleen, and 677 of feces. Two strains of S. typhimurium were isolated from 1,146 peritoneal swabs, and one strain of S. typhimurium was isolated from 409 samples of mesenteric glands.

Death After Ten Months Not Murder.—That the death of a 59-year-old man more than 10 months after he was stabbed by his son during a quarrel was not murder was decided at the Old Bailey. Seven physicians testified in the case. The prosecutor said that under the law if a man stabbed another with intent to cause grievous bodily harm and that if the other man died of that injury within a year and a day it was murder. The prosecution had to prove that the father's death resulted from one of the stab wounds. At the time of the stabbing none of the wounds was regarded as serious, and the injured man made a good recovery. In June he complained of abdominal pains, was operated on, but died on the next day. One physician testified that the stab wound was superficial and had not entered the chest or abdomen. Another physician said that a roentgenogram showed that the deceased had a strangulated diaphragmatic hernia. A pathologist testified that it was highly probable that the stab wound caused the hole in the diaphragm, but since this could not be proved beyond reasonable doubt, the defendant was acquitted.

Wellcome Trust.—On Oct. 5 Sir Henry Dale, chairman of the Wellcome Trust, announced new developments in the work of the trust, which came into existence in 1936. The trust is the holder of the entire share capital of the Wellcome Foundation and is responsible for seeing that the income is used according to the instructions contained in the founder's will. To date the trust has had a more or less *ad hoc* existence. For its first five years all its resources were absorbed in paying the heavy death duties on Sir Henry Wellcome's estate. Then came World War II, followed by the unsettled postwar conditions that have persisted until recently. The trustees have now decided that the trust can embark on a coordinated long-term policy. They have therefore moved to larger offices on Harley Street, have enlarged their administrative staff, and have appointed Dr. F. H. K. Green, formerly principal medical officer on the headquarters' staff of the Medical Research Council, as scientific secretary to the trust. He will be responsible for the executive organization of the trust's spending policy.

Isotope Brain Test Rejected.—After enthusiastic American advocacy at a London conference on the use of radioactive arsenic and other isotopes in locating brain tumors, the method was denounced by Mr. Wylie McKissock at the fourth neuroradiological symposium in London. The method involves injecting a radioactive isotope into a vein. Since a tumor is more vascular than the rest of the brain, it absorbs more of the material. When a Geiger counter is placed on the scalp "it ticks like mad" over the tumor. British specialists used the method for several years. Mr. McKissock found that it gave accurate results in only 60% and false results in about 10% of cases. Sometimes it indicates that a tumor is present when there is none, and sometimes it misses one that is there. For practical purposes an accuracy rate of 60% is of no value, especially since other methods give an accuracy rate of about 95%. The present value of the new method lies in research.

National Health Service Progress.—Although, according to the report of the Ministry of Health for 1954, the number of people on hospital waiting lists in England and Wales fell by about 50,000 last year, at the end of the year, 474,000 still awaited admission. This was, nevertheless, the most substantial reduction for any one year since the National Health Service began. The reduction by 43% in patients awaiting admission to tuberculosis units and sanatoriums was especially encouraging. The cost of the health service was about 36 million dollars less than that for 1953. Hospital and specialist services accounted for 55.5% of the cost; general practitioners for 11%; drugs for 9.7%; local health departments for 9%; dental service for 6%; and ophthalmic service for 2.2%. Patients met 5% of the cost. The average length of stay in the hospital was shortened. Nearly 60,000 more persons attended outpatient departments than in 1953.

Spirochetal Jaundice.—The exceptionally long dry spell this summer is suggested as a possible cause of the unusually high incidence of spirochetal jaundice that has been reported. In August 31 cases were reported, whereas the total number reported in 1953 was 98 and in 1954 106. Of the 31 cases reported in August, 21 were due to Leptospira icterohaemorrhagiae of which 3 were fatal; 8 were due to Leptospira canicola; and in 2 the species was unknown. In most cases the source of infection was not found, but, of those due to Lept. icterohaemorrhagiae, the proportion with a history of occupational risk was unusually low. Six had recently bathed in rivers. The hot dry weather may have contributed to this increase in leptospiral infections by encouraging river bathing and by increasing river pollution.

Singer Aids Health Drive.—Through the enterprise of a civil servant in St. Andrew's House in Edinburgh, Miss Nellie Lutcher is helping to swell the crowds flocking to have their chests x-rayed in the present mass drive. This civil servant learned that Miss Lutcher was singing a song to help a similar campaign in the United States. He procured seven records of the song, and now health officers ask dance halls in the towns where mass miniature radiography units are operating to play the record during intermissions. It is believed that the 6,000 persons a week who are being x-rayed include a large number of teen-age boys and girls influenced by the song.

Nurses Want Free Prescriptions.—Miners get free coal and railwaymen free travel, why should not nurses get free medicine prescriptions? This was the argument put forward by Mr. R. Miller, a male nurse, at the annual conference of the Society of Registered Male Nurses in Edinburgh. The delegates agreed to negotiate with the Whitley Council to exempt all nurses from the shilling fee for prescriptions dispensed within the hospital.

Equal Pay for Women.—Women in the National Health Service are to be paid at the same rate as men. Their scales will be raised by annual increments until equality is reached on Jan. 1, 1961. More than 60,000 full-time nurses employed in hospitals and by local health departments in England and Wales will benefit. Others to benefit include midwives, professional and technical staff, and administrative and clerical workers.

NEW ZEALAND

Accidents in the Home.—According to the medical statistics branch of the health department more accidents occur in homes than on the highways. In 1952, the latest year for which full statistics are available, 108 persons were hospitalized for accidents in the home for every 100 hospitalized for transport accidents. These figures take no account of those treated as outpatients. About 75% of all accidents in the home are treated in outpatient departments. Falls are the most common accidents occurring in the home. In 1952, falls in the home resulted in 96, or 44%, of the 222 deaths from accidents in the home. The principal hazards are polished floors, loose mats, loose edges of carpets, objects left lying on the floor, wet or frosty paths, stairs, and furniture. The number of accidents to children due to falls from trees, fences, and embankments reflect the venturesome nature of the growing boy. More than half of the falls from roofs involved children. Burns and scalds were very common among children under 2 years of age.

Deaths Due to Tuberculosis.—The Annual Report of the Director General of Health shows a steady decline in deaths from pulmonary tuberculosis in the white population. The same cannot be said of the Maoris, however, their rate showing a steady increase over the years. These figures probably represent the greater number of Maoris reporting for treatment through a breaking down of previous inhibitions in this respect. The Maoris do, however, show a steady decline in deaths from nonrespiratory tuberculosis. In nurses, there has been a decline in incidence of nearly 80% in the past five years.

BCG Vaccination.—The number of BCG vaccinations increased in 1954, with better coverage of hospital staff, contacts of registered patients, adolescents, and young adults. In New Zealand, where comparatively few are now infected before adulthood, vaccination of adolescents can be of real value in preventing tuberculosis.

NORWAY

Use and Abuse of Medical Certificates.—One of the postwar acts of the Norwegian Medical Association was to appoint a committee to deal with the various aspects of medical certificates. In an address delivered at a course for general practitioners, a member of this committee, Prof. Axel Ström, said that one of its duties has been to draft more or less standardized medical certificates. It has also tried to defend the medical profession against unreasonable demands made by the public and various official bodies. It is authorized to prevent physicians from using unsuitable certificates. Another function of the committee is to examine complaints and disputes over medical certificates and, if need be, report on them to the central committee of the Norwegian Medical Association. When articles of food have been rationed, physicians have often been put in an awkward position if required to certify that a certain person is entitled to preferential treatment. Their task would be easier were the rationing authorities to specify exactly which ailments qualify a patient for an extra supply of rationed food and were physicians instructed by the committee to refuse to issue any milk certificates until the authorities had defined the ailments qualifying for them. Another form of certificate expected of physicians concerns candidates for admission to schools and other bodies. Some of these admission certificates have been so poorly drafted by school authorities that they defeat their purpose. The committee has now drafted two model certificates, one elaborate and one comparatively short, for the use of school and other authorities. Some employers have objected to the wording of the committee's medical certificates concerned with the dates of the illness of employees. This difficulty has not yet been fully overcome, and the committee continues to be troubled over the drafting of life insurance certificates and the problems of privileged communications. The committee has discouraged the application by the public for the drafting of certificates that can serve no useful purpose.

Treatment for Drowning.—Dr. Sten Florelius, secretary-general of the Norwegian Red Cross, endorses the instructions given to ambulance workers—to start artificial respiration at once and to continue it until the patient has recovered or a physician has come and can take on all further responsibility. He quotes the case of a child who had been under water for three or four minutes and who showed no signs of life until artificial respiration had been continued for an hour. Ten minutes later the child was breathing normally. In another instance three boys had been under water or struggling on ice for 10 to 12 minutes before artificial respiration could be started. It was continued for 25 to 30 minutes before there were any signs of life, but it took two and a half more hours of treatment for normal respiration to be restored. Persons buried in snowdrifts may require several hours of treatment before normal breathing is restored.

SWITZERLAND

Adrenal Cortex and Diabetes Mellitus.—Professor Bastenie of Brussels, Belgium, reported before the Medical Society of Geneva that experimental adrenal diabetes is characterized by negative nitrogen balance, resistance to insulin, and absence of acidosis and is of a transitory nature. The disturbances disappear after injection of steroid hormones. Clinically, the diabetes is that of Cushing's syndrome. Although many authors have said that steroid diabetes is a rarity, Bastenie thinks that the adrenal glands play an important part in all cases of diabetes mellitus and that the cortical hyperfunction and consequent disturbances of glycometabolism caused by the disease are not peculiar to Cushing's syndrome. Since it is usually difficult to discover minor disturbances in glucose metabolism, Bastenie used his own method of rapid intravenous injection of dextrose, during and after which variations in blood sugar are recorded. After a marked transitory elevation, another elevation is observed between the 15th and 60th minute. An exponential curve can be plotted for this second phase, and, from this, one can determine a glucose assimilation factor that is independent of the quantity of dextrose injected or the state of dehydration of the patient. The descent of the exponential curve and its coefficient increases when the patient is given insulin; the opposite happens when the patient is given cortisone, but if this treatment is continued, the coefficient comes back to the normal value or even surpasses it, proving that cortisone favors the assimilation of glucose. In a diabetic patient cortisone increases glycemia, diminishes sensitivity to insulin, and causes insulin resistance. It does not increase preexisting insulin resistance.

Professor Bastenie studied the Achard-Thiers syndrome, which is the clinical manifestation of an adrenocortical hyperfunction between Cushing's syndrome and the adrenogenital syndrome. This condition is seen after the menopause in women who are, or who were, obese. It takes the form of a benign diabetes (rarely acidosic except with severe infection or injections of corticotropin) and hypertension. The patients show an elevation of 17-ketosteroid secretion, which is of adrenal origin. Under the influence of corticotropin an aggravation of the diabetes, which then resembles ordinary severe diabetes, occurs. Cortisone also diminishes the tolerance of these patients to glucose, but the disease sometimes undergoes spontaneous improvement. Pregnant women also have increased glucose assimilation: their coefficient is elevated above that of normal subjects. The adrenocortical hyperfunction of pregnancy can increase insulin secretion or aggravate latent diabetes, causing it to show clinical manifestations. Professor Bastenie thinks that steroid diabetes does not always have the four characteristics mentioned above. Hypercorticalism manifests itself also in diabetic patients with coma and acidosis. There, one sees eosinophilia develop in inverse proportion to the severity of the condition. Thus, the eosinophilia increases when glycemia falls. Insulin hypoglycemia aggravates the diabetes by stimulating the adrenal cortex. In view of this, therapy for decompensated diabetes ought to include reduction of adrenocortical function.

Atypical Onset of Acute Leukemia.—In all countries statistics reveal an increasing incidence of leukemia. In Switzerland, the rate has more than doubled in the last 10 years. The statistics depend not only on the growing number of cases but also on more frequent discovery of atypical cases. The onset of the disease may be localized to a single segment of the bone marrow and discovered by biopsy. H. Dubois-Ferrière and H. Goldschlag (*Schweiz. med. Wchnschr.* **85**:946, 1955) saw several patients with acute leukemia whose cases were originally diagnosed as refractory anemia with neutrophilic leukopenia and thrombocytopenia, often in the absence of splenomegaly. These cases could not have been diagnosed without the help of repeated puncture of the sternum, vertebral spiny apophyses, and crest of the ilium. One of the authors' patients was a 59-year-old man who complained of fatigue and increasing pallor of one year's duration. He was thin and dyspneic when the first hemogram was made, and it revealed hyperchromic anemia, with an erythrocyte count of 1,900,000 per cubic millimeter, 55% hemoglobin, and a leukocyte count of 3,600 per cubic millimeter, with normal distribution. He was treated for four weeks with 1 mg. of vitamin B_{12} in biweekly injections, but the anemia did not regress and the erythrocyte count fell to 1,600,000 per cubic millimeter, with a colorimetric index of 1.13. The leukocyte count was 1,130 per cubic millimeter and the presence of megaloblasts was reported. Treatment was increased to 1 mg. of vitamin B_{12} every day, and liver extract and folic acid were also given. After six weeks the hemogram remained unchanged. Splenomegaly had been noted, but this was forgotten in the face of the hematological picture that so strongly suggested pernicious anemia. The failure of therapy led to hospitalization of this patient. There, sternal puncture showed 65% atypical megaloblasts. There were only 2 to 7% atypical myeloblasts in the blood. Another interesting case occurred in a 6-month-old child who was febrile and anemic. Clinical examination suggested infectious anemia. The leukocyte count was 7,500 per cubic millimeter, and no atypical forms were seen. Sternal puncture showed a normal bone marrow, but spinovertebral puncture performed two days later showed the marrow to be wholly leukoblastic. Thus, acute leukemia developed in the form of anemia resistant to therapy, with granulocytic leukopenia in these two patients. The second case showed that the onset of the disease may be localized to a particular region of the skeletal system and that multiple biopsy is indispensable if the data suggest malignant hemopathy, even without myeloblastosis.

Psychiatric Nurse.—According to the Expert Committee on Psychiatric Nursing of the World Health Organization, the psychiatric nurse should be a guardian angel and not a guard. She not only should contribute to the care and cure of the mentally ill but also should help them regain a place in normal life and help to prevent recurrence of the mental illness. Her training should make it possible for her to carry out these functions side by side with the psychiatrist. It is estimated that in Europe and North America between 40 and 50% of all hospital beds are occupied by mental patients. Their care therefore presents a problem that concerns society in general, and one crucial aspect of this problem is nursing care. The importance of the role of the psychiatric nurse should be recognized. Her training should include comprehension of personality growth and development, theories of human behavior, concepts of anxiety, the sociologic aspects of psychiatric assistance, and group methods applicable to situations within ordinary community life. She should also be encouraged to participate more actively in research in the prevention and treatment of mental illness. This would not only give her a better understanding of her own role but the results of her observations would also be a valuable tool for the psychiatrist in his understanding of patient-nurse relations and of the effect of the nurse on her patient.

Chemical Products in Foodstuffs.—Many chemical products are used to season, color, or preserve foods. In the United States, for example, more than 800 such products may be added; in Sweden, 500; and in Germany, over 1,000. The World Health Organization is investigating this matter, since many countries are worried about this "chemical invasion" and have passed various laws to control it. The Alimentation and Agriculture Organization and the World Health Organization held a conference in Geneva and concluded that international action should be taken for the following reasons: the situation is fraught with a latent danger to health, which danger threatens all nations, and no single nation or laboratory by itself could establish international coordination. The most urgent task consists in establishing uniform methods of evaluating the toxic effects of the chemical products used and in formulating principles for their use. The problem of coloring agents is especially important because substances synthesized from coal tar are now being used.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Benign Essential Hypertension: Follow-Up of 100 Patients Under Observation for from 18 to 34 Years. A. M. Burgess. Ann. Int. Med. 43:740-744 (Oct.) 1955 [Lancaster, Pa.].

One hundred persons with essential hypertension were observed during the years 1923 to 1954. All had shown a systolic pressure of 180 mm. Hg or higher, or a diastolic pressure of 100 mm. Hg or higher, and had remained in good health for eight years before being included in the series. By July 1, 1954, 74 had died, 18 were alive and well, and 8 could not be traced. When the last report of those who could not be traced was counted as the end of their lives, the average length of survival was to within 2.7 years of life expectancy, as shown in life insurance tables. Thirty-two patients were 50 years of age or younger when first observed to have hypertension. The youngest was 28 years. Of this group 17 had died, 13 were alive, and 2 could not be traced. The average individual had, at the time of this report, lived to within 7.6 years of his life expectancy. Sixty-eight patients were over 50 years of age when first found to be hypertensive. Of this group 55 had died, 7 were alive, and 6 could not be traced. The average individual of the group had lived 1.2 years beyond his life expectancy. None of the patients had symptoms directly attributable to hypertension. Some dizziness and occasional headaches were mentioned by the older group, in about the same proportion as occurs in others of the same age. Systolic pressure of over 300 mm. Hg, as was seen in five patients, did not appear to cause any symptoms. Although the series is too small to allow definite conclusions or to be of statistical value, the author gained the impression that essential hypertension of long duration is a nonprogressive, benign condition that, in the absence of cardiac, retinal, or renal damage, is compatible with a duration of life up to normal expectancy in individuals over 50 and in many who are under that age. Because of the anxiety of most patients about high blood pressure, their attention should not be directed to it. Unless or until the patient shows signs of beginning cardiac, retinal, or renal damage, surgery is not indicated, and the temptation to use the modern hypotensive drugs should be resisted. Early malignant hypertension may be indistinguishable at first from the benign condition, and frequent observation is advisable until the diagnosis is clear.

Controlled Hypotension with 4560 RP and Procainamide: Observations on Forty Cases. F. Matturro. Gior. ital. chir. 11:956-963 (Aug.) 1955 (In Italian) [Naples, Italy].

The administration of Largactil (4560 RP) combined with that of procainamide was used by the author to induce hypotension. At first, the procainamide was given intravenously in a 2:1,000 concentration at the rate of 30 to 40 drops per minute after one vial (0.05 gm.) of Largactil had been emptied into the infusion tube. A constant and evident hypotensive effect became manifest in an average of 15 to 20 minutes. Later, a more marked and more constant hypotensive effect was obtained by administering the procainamide in a 3:1,000 or 4:1,000 (1.5 or 2 gm. in 500 cc. of isotonic sodium chloride solution) concentration at the rate of 80 to 100 drops per minute. The author used this combination for 40 surgical patients who were given one vial of Largactil and from 0.4 to 1.5 gm. of procainamide, the smallest doses of the latter being given, with prompt and marked effects, to patients with hypertension and arteriosclerosis. The pulse and the respiration remained satisfactory, and alarming signs were not observed during or after the operation. The immediate postoperative course was good, secondary hemorrhages were not observed, and there was a gradual (an average of 8 to 10 hours) return of the arterial pressure to the preoperative values. The pharmacological action of this combination can be summarized as follows: (1) on the ganglions, a marked ganglioplegic effect and blocking of conduction; (2) on the centers, synaptic interruption between the cortex and the diencephalon and depression of the vasomotor center and the central vasomotor mechanisms; and (3) on the periphery, abolition of vasoconstriction and of the vascular tone. Because of these actions, the vasopressor reflexes that are due to stimulation of the vasosensitive zones and in particular of the carotid sinus area can no longer take place. With this combination, those side-effects that are usually seen in patients in whom hypotension is induced by means of methonium salts are prevented and, because of a more complete blocking of the autonomic nervous system, tachycardia is also prevented. The main value of the Largactil-procainamide combination lies in the synergism and potentiation of the effects of the two drugs.

Threatening Myocardial Infarction. H. Kjærgaard. Ugesk. læger 117:1177-1180 (Sept. 8) 1955 (In Danish) [Copenhagen, Denmark].

In threatening myocardial infarction, unprovoked attack of prolonged precordial pain, pain not relieved by rest or glyceryl trinitrate (nitroglycerine), and absence of objective signs of myocardial infarct are characteristic. Occasionally an acute myocardial infarction occurs after an interval of hours or days. The condition is ascribed to some acute narrowing of a coronary artery. Threatened myocardial infarction is suggested by symptoms of long-continued precordial pain, angina pectoris at rest, sudden occurrence of angina pectoris in patients previously well, sudden aggravation of angina pectoris, sudden ineffectivity of glyceryl trinitrate in angina pectoris, and nocturnal dyspnea. The treatment is immediate rest in bed, continued for from 7 to 12 days.

Functional Behavior of the Kidney in Mitral Disease. A. Amerio, A. Vercellone and G. Lunel. Minerva med. 46:211-217 (July 28) 1955 (In Italian) [Turin, Italy].

The authors studied the renal function in 33 patients with pure mitral stenosis and 17 with mitral stenosis associated with decompensation on all of whom surgery was performed by Prof. A. M. Dogliotti. On the basis of the severity of the subjective and objective symptoms, the patients were divided into four groups. Group 1 consisted of those patients who practically showed no clinical signs of heart decompensation; group 2, of those in whom this was evidenced by marked dyspnea on effort and at night; group 3, of those with signs of right ventricular decompensation, stasis cirrhosis, and malleolar edema on effort; and group 4, of those with frank decompensation and stabilized edema. It was found that the kidney circulation, as shown by the renal plasma flow and the filtration fraction, was already impaired in the early stages of the disease (group 1), whereas the glomerular activity was hardly altered at this time. The impaired circulation was the severest renal dysfunction in these patients, and it became severer as the heart disease progressed. It was the only alteration that was present without exception in all the group 4 patients. The tubular activity of the kidney in these patients was only slightly altered. Many workers agree on a cause and effect relationship between the general hemodynamic alteration and renal ischemia. An attempt at establishing the relationship between the ischemia and the degree of

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The place of publication of the periodicals appears in brackets preceding each abstract.

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stenosis, as evaluated during the operation, showed the existence of a relationship between the two hemodynamic factors. The hypothesis is advanced that the first cause of the hemodynamic alterations may be the barrier opposed by the stenosed mitral orifice to the blood that flows from the atrium into the left ventricle with a consequent and proportional reduction of the cardiac output and secondary ischemia of the kidney. The nature of the relationship between the two hemodynamic factors is not known.

Treatment of Bronchial Asthma with the Adrenocorticotropic Hormone (ACTH). B. B. Kogan. Klin. med. 33:49-57 (Aug.) 1955 (In Russian) [Moscow, U. S. S. R.].

Corticotropin is not a specific therapeutic agent for bronchial asthma, but its spasmolytic and antiallergic effects make it a valuable adjunct in the therapy of attacks of this disease and, especially, of status asthmaticus. Its antiallergic action is manifested in the uniform lowering of blood eosinophils. In the present series, 26 patients were treated with corticotropin. The short-term results were very good in 11, good in 5, fair in 3, poor in 3, and nil in 3. In one patient, administration of the hormone caused extrasystoles. In patients with pulmonary fibrosis and intractable emphysema with chronic pulmonary insufficiency but without true bronchial asthma or clinical signs of bronchospasm and eosinophilia, corticotropin therapy had no effect. In those patients benefited, good results were achieved within two to three weeks when daily doses of from 20 to 40 units of corticotropin were used. Side-effects pertaining to the sympathetic nervous system with this dosage were observed in only two patients. The advantage that corticotropin has over other spasmolytic agents such as epinephrine, ephedrine, and euphylline lies in its favorable effect on the state of the body as a whole. The hormone is the treatment of choice in bronchial asthma, provided certain contraindications are not present (pulmonary tuberculosis, hypertensive disease, arteriosclerosis, or ulcer).

The Low Salt Syndromes. T. S. Danowski, E. B. Fergus and F. M. Mateer. Ann. Int. Med. 43:643-657 (Oct.) 1955 [Lancaster, Pa.].

Sufficient evidence has accumulated to indicate the existence of several different types of "low salt syndrome." The authors suggest that the general classification "hyponatremia" might be used to refer to all abnormally low concentrations of sodium in plasma, irrespective of etiology, and perhaps replace the somewhat misleading designation, "low salt syndrome." Hyponatremia may be present with decreased, intact, or increased total stores of extracellular sodium. The authors discuss these different types of hyponatremia and review their clinical experiences in the light of these different entities. They list the clinical diagnoses and probable etiology of hyponatremia in 137 hospitalized patients. Depending on the age group, one-third to one-half of the patients in whom hyponatremia developed were ill with diseases that ultimately proved fatal. Hence, the appearance of low values of serum sodium may well be an ominous sign. The authors reviewed the clinical and laboratory findings in this group of patients and tried to ascertain the origin or origins of the hyponatremia. In this, they relied on the clinical history, the intake and output data, the results of external balance studies, and the responses to therapy. The history, symptoms, signs, and laboratory findings will often permit differentiation of hyponatremia resulting from sodium depletion or cellular hypo-osmolarity in which sodium stores are reduced, water intoxication and hyperlipemic hynonatremia in which body sodium is intact, and the hyponatremia encountered in edema states such as congestive heart failure, cirrhosis, and renal failure in which the total sodium of the body is actually increased. The commonest cause of hyponatremia in children was sodium depletion occurring in the course of diabetic acidosis, gastrointestinal fluid losses, and cerebral disorders. The diabetic children invariably survived, whereas the mortality was approximately one in three in the other groups; in adults, hyponatremia was encountered most often in patients with cardiac or renal failure. The mortality in these groups was approximately 50%. It should be recognized that analyses of serum solute values were in general requested in patients who were seriously ill. It may well be that other forms of unrecognized hyponatremia exist.

Diabetes, Hyperthyroidism, and Cardiopathy in Elderly Patients. L. M. Alvarez, R. E. Pupi and J. Raffaele. Rev. Asoc. méd. argent. 69:174-176 (June 15-30) 1955 (In Spanish) [Buenos Aires, Argentina].

Diabetes, hyperthyroidism without goiter, and cardiopathy are rarely associated in the elderly. Hyperthyroidism aggravates diabetes. It is masked by the symptoms of the complicating cardiopathy. The symptoms of hyperthyroidism in the elderly are more or less the same as those of diabetes in patients of the same age, with the exception of the increase in the basal metabolism in hyperthyroidism. A diagnosis is made by the coexistence of characteristic symptoms, with high values of the basal metabolism in repeated tests, and of positive results of the test of capturing radioactive iodine. The treatment aims to compensate diabetes and the cardiac insufficiency and to restore thyroidal hyperfunction to normalcy. Hyperthyroidism greatly increases the requirement of insulin in the elderly, in certain cases, to a true insulin resistance. Its reversal causes great improvement of diabetes and of the cardiac insufficiency. The treatment, after this improvement, can be continued with satisfactory results with smaller doses than those previously administered, or with small doses of insulin and discontinuation of digitalis. The authors observed two women, 60 and 62 years old, respectively, with diabetes, hyperthyroidism without goiter, and cardiopathy. The treatment of diabetes followed the classical schedule. Hyperthyroidism was controlled by the administration of methyl propylthiouracil alone or followed by the administration of radioactive iodine. The course of diabetes and the control of cardiac insufficiency were more favorable when euthyroidism was reached after administration of methyl propylthiouracil than after administration of radioactive iodine.

The Clinical Value of Renal Biopsy. R. M. Kark, R. C. Muehrcke, C. L. Pirani and V. E. Pollak. Ann. Int. Med. 43:807-847 (Oct.) 1955 [Lancaster, Pa.].

The inherent difficulty with renal biopsy is finding the organ with the biopsy needle. The authors use intravenous pyelograms and an atraumatic, fine exploring needle to locate the lower pole of the kidney before they insert the thin Franklin-Vim-Silverman biopsy needle to secure a small core of renal tissue. In the prone position, a sandbag placed under the abdomen pushes the kidney near the surface of the back and also insures hemostasis after the biopsy has been taken. The point of the exploring needle is in the kidney when that portion of it outside the skin swings through a wide arc with deep inspiration. Exact location of the kidney by this simple maneuver is the reason why this technique is more efficient in obtaining tissue than any other published method. The main contraindications to this type of biopsy that the authors have encountered have been progressive severe uremia, a hemorrhagic diathesis, lack of cooperation on the part of patients, severe calcific atherosclerosis, and surgical lesions of the organ such as hydronephrosis. The authors did 200 renal biopsies with patients in the prone position. No serious complications developed; morbidity was slight. Cultures of the blood and tissues taken from the kidney were made in all cases. Renal biopsy seems to be more accurate than cultures of the urine in determining the organism responsible for infection within the kidney. Five patients were observed in whom urine cultures were repeatedly negative and in whom culture of the kidney tissue was positive. They all responded to treatment with antibiotics. Analysis of the results demonstrates that renal biopsy is useful in the diagnosis and management of diseases involving the nephron, the vessels, and the ground substance of the kidney. In the nephrotic syndrome it is frequently difficult to make a prognosis when the patient is first seen, but renal biopsy facilitates prognosis in this condition. Serial biopsy studies have enabled the authors to make a close clinicopathological study of the natural history of renal diseases; the biopsies have been useful in determining the response of the organ to treatment and are proving valuable in solving problems related to renal pathophysiology, such as the origin and mechanism of renal hematuria and proteinuria.

Adrenocorticotropic Hormone and Adrenal Steroids in the Management of Infectious Diseases. W. W. Spink. Ann. Int. Med. 43:685-701 (Oct.) 1955 [Lancaster, Pa.].

While reduction of inflammation was mentioned as one of the most important effects of treatment with corticotropin and cortisone by Hench and his associates and subsequently by other investigators, it was also shown that these hormones could convert a mild infection into a fulminating and lethal disease. Spink is concerned with the desirability of the short-term use of corticotropin or corticosteroids in critically ill patients with certain infectious diseases. His discussion revolves around certain aspects of the problem that have been of interest to investigators at the University of Minnesota. Adrenocorticotropin and corticosteroids subdue inflammation and suppress the toxic reactions in patients having infectious diseases. For these reasons these hormones are of value in carefully selected patients who are critically ill or who have debilitating complications. Tuberculosis, acute rheumatic fever, typhoid, brucellosis, trichinosis, viral hepatitis, mumps orchitis, and infectious mononucleosis are among the diseases in which the clinical course has been favorably altered by treatment with the steroid hormones. Adrenal insufficiency may participate in the peripheral vascular collapse and in shock that occurs in bacteremic states, particularly in those caused by gram-negative bacteria. Adrenocorticosteroids may be used advantageously in such patients, along with antibiotics and pressor agents. Severe hypersensitivity reactions, involving the skin, vessels, joints, and bone marrow, which are induced by therapeutic agents, including the sulfonamides and antibiotics, can be promptly controlled by the administration of the corticosteroids. Corticotropin and corticosteroids have profound metabolic effects on the human organism, and, when used in the management of infectious diseases, these agents should be given for only brief periods and only to carefully selected patients.

C-Reactive Blood Protein in Inflammatory Disease: Its Value as an Index of Rheumatic Activity. P. A. Ruggieri. J. M. Soc. New Jersey 52:500-504 (Oct.) 1955 [Trenton, N. J.].

Reports from the literature show that the serum of patients in the acute phase of certain infectious diseases yields a precipitate when in contact with a solution of the C-polysaccharide of pneumococcus. This reaction is not restricted to pneumococcic disease. Its close time relationship with the acute phase of an illness has recently been clearly demonstrated in rheumatic fever in which laboratory tests for C-reactive protein are considered to provide the most sensitive indicator for the presence of rheumatic activity. The presence of C-reactive protein in the serums showed a close correlation with the intensity and duration of the inflammatory reaction of the host as indicated by elevated temperature and increased serial erythrocyte sedimentation rate. Despite certain limitations, the C-reactive protein test is proving useful in the management of the patient with rheumatic fever. The poorly defined normal range of the erythrocyte sedimentation rate in rheumatic fever has made evaluation of certain cases uncertain. C-reactive protein is of value in resolving some of these difficulties. Comparison of changes in the sedimentation rate and in C-reactive protein titers during fluctuations in activity discloses a tendency for the latter to respond more promptly. C-reactive protein usually disappeared during the early recovery period while the sedimentation rate was still elevated. The test is simple to perform and may be routinely employed, now that specific antiserums are commercially available.

Effect of Bacteriostatic Drugs on Tuberculous Lymph Nodes. P. Mutschler and G. Hasche-Klünder. Beitr. Klin. Tuberk. 114:406-435 (no. 4) 1955 (In German) [Berlin, Germany].

The cervical lymph nodes were studied in 283 guinea pigs experimentally infected with tuberculosis. The infection usually becomes generalized after the fourth week; this was verified in a preliminary series of 42 animals. The local injection treatment of the tuberculous nodes with Conteben, streptomycin (SM), and aminosalicylic acid (PAS) led to an objectionable amount of fibrosis; this offset the beneficial effects, which were convincing in the case of streptomycin but unsatisfactory in the cases of Conteben and aminosalicylic acid. Extirpation of the submental nodes did not affect the course of the disease. Streptomycin given orally after such extirpation was somewhat more effective than Conteben. Unfavorable effects of the postoperative impairment of lymphatic circulation became manifest when treatment with the drugs was discontinued. The most efficacious combination after lymphadenectomy was streptomycin and Conteben. Preparations of isonicotinic acid hydrazide (INH) were equally effective in the early stages, but in the later stages the effect was negligible. Neither of the two preparations of aminosalicylic acid tried was effective. In advanced stages, the various drugs had more marked effects on the other organs than on the lymph nodes, and, when treatment with the drugs was discontinued, the disease progressed faster in the nodes than in the organs. For successful treatment it was necessary to begin early and to persist. In general, the tuberculostatic effect was better the lower the initial infecting dose, the higher and more prolonged the concentration of the drug, and the greater the proliferative ability of the bacilli. These conditions are realized only in the early stages of lymphadenitis, and this explains the unsatisfactory results of treatment after there has been caseation. Postoperative treatment with bacteriostatics is therefore recommended in tuberculous cervical lymphadenitis in man.

Indications for Cavernostomy and Its Results. G. Salzer. Beitr. Klin. Tuberk. 114:381-384 (no. 4) 1955 (In German) [Berlin, Germany].

Cavernostomy was done in 46 tuberculous patients in whom the prognosis had been considered hopeless because the cavities were large or multiple and had proved resistant to standard treatment. Special care was taken to locate the incision as nearly as possible over the lesion; one or two ribs were resected, depending on the size of the cavity, and enough of the affected pleura and lung was removed to make a rather wide opening. A tampon is left in place five or six days, during which time there is usually a high fever; removal of the tampon and application of dressings with antibiotics brought the temperature back to normal, and thereafter neither the sputum nor the discharge from the fistula contained any more Mycobacterium tuberculosis. The presence of other cavities, large or small, may necessitate additional surgery, and a secondary operation is generally required to close the bronchial fistula. The latter proved unnecessary in 15 cases. Nine cases that terminated fatally included five in which the cavities were huge and bilateral. The cavernostomy proved lifesaving in many cases that had appeared hopeless after years of varied treatment.

Fifty Years of Malaria Control in the Panama Area. E. J. Dehné. Am. J. Trop. Med. 4:800-811 (Sept.) 1955 [Baltimore].

The Isthmus of Panama was an area of pestilence during the Spanish conquest of Central and South America. Its environment provided optimum breeding conditions for Anopheles albimanus, the principal malaria vector, because of the warm, humid climate and the heavy annual rainfall, usually varying from 70 to 130 in. The high relative humidity ranging from 60 to 99% saturation, ambient temperatures of from 63 to 97 F, waterlogged country, deforested lands, and innumerable swamps and water collections presented a serious challenge to efforts to control malaria when, in 1904, the United States launched its sanitary program. Hospital admission rates for malaria increased rapidly with the importation of large numbers of workers, reaching a peak of 821 per thousand employees in 1906. An equally serious problem was presented by yellow fever, which became epidemic in the Canal Zone in April, 1905. Efforts made by the engineers to secure the replacement of Gorgas, Carter, and their assistants, "who believed in the mosquito transmission theory," failed, and in July, 1905, the sanitation organization became an independent department and functioned with greater authority. Its first efforts were directed against yellow fever—then the immediate threat. They succeeded, just as they had in Havana, and no fatal case of yellow fever originating in the Canal Zone was reported after November, 1905. The procedures employed in the campaign to control malaria were (1) extensive and prophylactic use of drugs (at that time limited to quinine); (2) screening of houses and use of mosquito nets; (3) killing of adult mosquitoes in dwellings and the elimination of harboring places by cutting away sheltering underbrush; (4) the destruction of mosquito larvae and pupae by the use of oil and other larvicides; (5) the elimination of mosquito breeding places by filling, draining, training streams and admitting tide water; and (6) the use of permanent subsoil tiling and concrete-lined ditches in an attempt to drain all standing water. These procedures, which with certain modifications are still the key to malaria control, were increasingly successful as new drugs, insecticidal methods, and sanitation techniques became available. Malaria is now an uncommon disease in the Canal Zone, and urban communities in the Republic of Panama enjoy a considerable degree of freedom from infection. Information collected from malaria surveys during the last two decades shows, however, that the disease still persists in all the provinces of the republic. The Canal Zone, in fact, is bordered by areas where the recurring high prevalence of malaria serves as a continuing reservoir of infection from which an abundant perennial population of Anopheles mosquitoes can transmit the disease. Continuous and unremittent application of control measures by the individual and the community aimed at reducing the vector and treating the carriers is the only solution to the problem of malaria in the Panama area.

Amebic Hepatitis: Laboratory Findings and Treatment with Erythromycin. T. L. Nelson, H. H. Anderson and O. Thomas. Am. J. Trop. Med. 4:812-821 (Sept.) 1955 [Baltimore].

The disease entity often referred to as amebic hepatitis, which consists of an enlarged liver, tenderness in the right upper quadrant, and sometimes disturbed hepatic function detected by laboratory tests, is seen in a varying percentage of patients with intestinal amebiasis. It is not accompanied by hepatic amebic abscess formation. The lack of consistency in regard to the laboratory findings evident in reports dealing with this condition led to an effort to establish certain diagnostic criteria for amebic hepatitis by the thorough study of a few patients exhibiting this clinical picture. An attempt was made to determine the value of various laboratory procedures and their relative consistency in correlation with a recognizable clinical entity. Efforts were also made to rule out viral hepatitis and nutritional liver disease, sometimes confused with amebic hepatitis, by parallel pathological studies of liver biopsy specimens from representative patients. Finally, the efficacy of erythromycin and chloroquine therapy was investigated. A therapeutic response to either of these agents was regarded as confirming the diagnosis of amebiasis, but the question whether the infection was actively present in the liver itself or was secondary to intestinal Endamoeba histolytica infection remains unanswered. The 29 patients studied, all of whom presented evidence of deranged liver function in addition to proved intestinal amebiasis, were chosen from 371 patients with intestinal amebiasis in a 2,700-bed California hospital for the mentally retarded. The general pretreatment picture of amebic hepatitis seen in the liver biopsy specimens was that of subacute hepatitis that was frequently focal in distribution and usually most marked in the periportal areas, where it is shown chiefly by lymphocyte and plasma cell infiltration. Increased glycogen content was noted in some cases in the individual parenchymal cells. Post-treatment biopsy specimens in which a response to therapy appeared to be evident showed a diminution in the inflammatory reaction. Regeneration of parenchymal cells was shown by an increase in cell size and variations in nuclei. No amebas were found in any of the biopsy specimens. Evaluation of the efficacy of treatment on the basis of the patient's physical status and all the laboratory findings in each case showed a definitely favorable response in clearance of liver disease in 20 patients who were given erythromycin and in one who was given a combination of erythromycin and fumagillin. The nine patients resistant to erythromycin were subsequently put on chloroquine therapy with a favorable response in six, equivocal results in two, and no response in one. Six of the 12 tests and signs employed were significantly altered in one-third or more of the patients studied. The six most useful procedures, with the percentage of abnormal findings in each, were the cephalin flocculation reaction (two plus or more), 93%; liver biopsy with pathological findings, 82%; urine urobilinogen, 1:20 or greater dilution, 65%; elevated corrected erythrocyte sedimentation rate, 60%; liver enlarged and/or tender on palpation, 48%; and right lower pulmonary region showing pathological changes on x-ray examination, 36%. Objective findings such as those obtained in these patients deserve greater consideration as diagnostic criteria than the subjective impressions hitherto relied on.

Hepatitis Epidemic in Haderslev Eastern District in 1953-1954. I. Krogh. Ugesk. læger **117**:1219-1221 (Sept. 15) 1955 (In Danish) [Copenhagen, Denmark].

Of 44 patients with hepatitis admitted from February, 1953, to March, 1954, 42 are believed to have had epidemic hepatitis. The source of infection was established in 36 cases. The epidemic was benign. No cases of cirrhosis of the liver developed. Questionnaires sent 10 months after discharge of the last patient brought answers from 38 patients. Icterus had not recurred. Some patients reported slight fatigue, but there were otherwise no complications. The Takata-Ara reaction was positive in the grave cases where the icterus index and sedimentation reaction were high and the duration of illness prolonged, but it was also often positive in mild cases. Urobilin is always present in the urine in hepatitis except in milder cases and at the peak of the disease in severe cases.

SURGERY

The Cleft Lip–Cleft Palate Problem. H. M. Trusler, T. B. Bauer and J. M. Tondra. Plast. & Reconstruct. Surg. **16**:174-188 (Sept.) 1955 [Baltimore].

The authors analyze results obtained in 750 patients with cleft lip–cleft palate operated on during the last decade at the Indiana University Medical Center. Good surgical correction of the deformity is the chief factor in the rehabilitation of these patients. No single operation is adequate for all cases. The procedures that have given the best result for the various types of deformity are outlined. Much of the cleft lip–cleft palate surgery in the past has resulted in bad residual defects. Some of the surgery has resulted in the destruction of valuable tissue with excessive scarring and growth disturbance in the upper jaw and teeth. The cleft lip–cleft palate surgery of the present day is not producing serious growth disturbance in the maxilla. Orthodontia is a valuable adjunct in the rehabilitation of the cleft lip–cleft palate patient, but there are definite limitations in this field that must be recognized. Many of these patients have teeth so defective that orthodontia is futile. Fortunately these defects can be corrected by dental prosthesis. Speech therapy is an important factor in rehabilitation of the cleft palate patient. In the majority of cases, a good surgical repair at 18 months to 2 years of age gives good speech without specialized speech training, but the patient with a marked hypoplastic palate usually does not get good speech without the help of a speech therapist. Hearing defects have been a frequent cause of bad speech in cleft palate patients in the past. They are usually associated with repeated infections of the middle ear. It is not necessarily an integral part of the deformity. Early closure of the cleft palate with careful dissections and the aid of antibiotics reduces the incidence of this complication.

Reactivation of Rheumatic Fever Following Mitral Commissurotomy. E. H. Fell and R. T. Helman. A. M. A. Arch. Surg. **71**:512-517 (Oct.) 1955 [Chicago].

The authors review clinical and laboratory observations that might suggest reactivation of rheumatic fever in 100 consecutive patients who received surgical treatment for mitral stenosis. Attempts were made to free the patient from active rheumatic fever and other infections before surgery was undertaken. While blood studies proved important and helpful, they were not absolutely reliable. The sedimentation rate and antistreptolysin titer were normal in some patients, in whom microscopic studies on the auricular appendage revealed marked rheumatic activity. The patient should be well compensated and the circulating blood cells should be normal in number and quality before surgery is undertaken. A portion of the left auricular appendage is generally removed during mitral commissurotomy to allow the entrance of the operating finger. Histopathological studies were made on these appendages and permitted classification into the inactive, or the group showing no evidence of rheumatic heart disease, and the active group that showed rheumatic carditis. Forty-six or 52% of 88 auricular appendages showed rheumatic activity in the endocardium and myocardium on microscopic study. While histological evidence of rheumatic heart disease was most common in the younger age group (73% of those less than 30 years of age), it did occur at all ages. The four patients with reactivation of the rheumatic fever after mitral commissurotomy whose histories are presented were less than 25 years old. In one of these four patients, a 12-year-old girl, a mitral commissurotomy was done as a lifesaving procedure in the presence of what was believed to be active rheumatic fever. Microscopic study confirmed the clinical diagnosis of active rheumatic heart disease. Surgery confirmed the severity of the mitral stenosis and relieved the obstruction. The child is now receiving treatment for rheumatic fever and is progressing satisfactorily. All four patients who showed signs of reactivation have benefited from mitral commissurotomy. Since it is impossible to predict which patient will experience a reactivation, the authors advise prolonged postoperative antibiotic therapy or chemotherapy in patients in whom histopathological studies reveal rheumatic heart disease.

Prognostic Significance of Embolism with Regard to Commissurotomy for Mitral Stenosis. A. Actis-Dato and F. Morino. Minerva med. 46:255-263 (Aug. 4) 1955 (In Italian) [Turin, Italy].

A review of the history of 500 patients with mitral stenosis on whom Prof. A. M. Dogliotti performed a mitral commissurotomy revealed that 52 (10.4%) had had an embolism before the operation. An embolism occurred during or after the operation in 6 (11.5%) of these 52 as compared with its occurrence in 13 (3%) of the patients whose history did not reveal a previous embolism. Thus the risk of the occurrence of a postoperative embolism was three to four times greater for patients who had than for those who had not previously suffered an embolism. More than half the patients (three out of five) in whom an embolism occurred during the operation had previously had an embolism, whereas only one-fifth of the patients in whom an embolism occurred postoperatively had had a previous embolism. This different rate of embolic complications may have been due to the fact that the embolizing material present in the atrium or the valves before the operation and removed during its performance plays a great part in the causation of preoperative and intraoperative embolism, whereas a postoperative embolism is caused by new thrombotic material that is formed in the atrium or on the valves in the immediate postoperative course. Three (5.7%) of the 52 patients died as the result of intraoperative or postoperative embolism. In none of the 49 patients who survived did embolism recur months or even years after the operation. Only 3 (0.67%) of the other 448 patients died from the same cause. The authors conclude that a history of embolism in patients with mitral stenosis should not constitute, in the absence of other complications, a contraindication to commissurotomy because, although the operative risk is greater for such patients, it is not so great as to contraindicate the intervention. On the contrary, by improving the hemodynamic and cardiovascular conditions, the commissurotomy may not only offer the patient a better chance for survival but it may also prevent the occurrence of a new embolism.

Megaesophagus: Surgical Therapy. D. B. Effler and J. W. Rogers. A. M. A. Arch. Surg. 71:551-559 (Oct.) 1955 [Chicago].

Although the terms cardiospasm, achalasia, and megaesophagus are used interchangeably, megaesophagus is distinct from functional cardiospasm in that it is an organic disease that is associated with structural change. It is characterized by tonic contraction of the circular muscle of the terminal esophagus and proximal dilatation of part or all of the organ. The patient with megaesophagus gives a history of dysphagia and food retention. He may regurgitate undigested food from meals taken a day or two before. Total obstruction may occur when a bolus of meat or fibrous membrane (skin of a prune or apple) acts as a plug in the narrowed terminal outlet. These patients do not have peptic esophagitis or other forms of indigestion. The weight loss is directly proportional to the mechanical obstruction. Pulmonary symptoms are not uncommon, brought on either by aspiration or by the dilated esophagus, which reduces pulmonary function by compression. Radiographic studies show dilatation and impairment or absence of normal esophageal peristalsis. Attempts to relieve the tonic contraction of the cardiac sphincter and megaesophagus by sympathomimetic drugs, sedatives, antispasmodics, or procaine derivatives have been singularly unsuccessful. Direct surgical intervention is the treatment of choice for all patients who have true megaesophagus. The authors regard Wangensteen's operation, in which the terminal esophagus as well as the upper stomach is resected, as too radical. In the first 12 of the 32 patients in whom they resorted to surgical treatment for megaesophagus, they employed the Heineke-Mikulicz principle of esophagocardioplasty. However, all but three of these patients required a secondary operation to relieve the symptoms suggesting reflux esophagogastritis. Since 1952 the authors have employed transthoracic linear myotomy. The 20 patients operated on by this method obtained complete relief of dysphagia and food retention.

Unusual Manifestations of Parathyroid Adenoma. C. M. Lee Jr., W. T. McElhinney and E. A. Gall. A. M. A. Arch. Surg. 71:475-485 (Oct.) 1955 [Chicago].

Of a series of 11 cases of parathyroid adenoma, 4 were sufficiently unusual to merit comment. One of these occurred in a 7-year-old boy in whom blindness was a concurrent and apparently related complication. Another case was complicated by the development of a fatal fibrosarcoma in what is believed to have been originally an area of osteitis fibrosa cystica of hyperparathyroidism. In a third case, true neoplastic parathyroid adenoma occurred in association with secondary parathyroid hyperplasia, the latter the result of nephrocalcinosis. The fourth case was one of parathyroid poisoning—the so-called "hyperhyperparathyroidism" of Albright. The remaining cases followed conventional patterns. The authors cite evidence to the effect that parathyroid adenoma is frequently not recognized until the opportunity for cure has been lost. Only one of the 11 cases of parathyroid adenoma was discovered in connection with urinary calculus, although four of these patients had such calculi. Furthermore, the formidableness of parathyroid surgery has apparently so impressed some physicians that some patients may not receive proper treatment. One case is cited to prove this. Parathyroid surgery is a skill that should be within the reach of all who need it. The surgeon who undertakes parathyroid surgery should have adequate general training and should conscientiously prepare himself by careful study and, if possible, by cadaver dissection, before attacking his first parathyroid adenoma; but he should not deny a patient his chance of cure because the patient is unable to go to a distant center.

Treatment of Bleeding Esophageal Varices After Splenectomy. G. A. Hallenbeck and E. Shocket. A. M. A. Arch. Surg. 71:581-587 (Oct.) 1955 [Chicago].

Portal decompression by anastomosis with the caval venous system is at present the preferred treatment for bleeding esophageal varices in patients with portal hypertension. It may or may not be possible in patients after splenectomy or when the splenorenal shunt has failed. The problem is one of determining whether branches of the portal system exist that are large enough and in suitable position for anastomosis to the vena cava. This cannot be done without exploration and should not involve a tedious and hazardous dissection that may be of no avail. A plan is presented whereby a brief laparotomy allows exploration of the abdomen, examination of the liver, palpation of the porta hepatis, measurement of portal pressure, and obtainment of a portal venogram. On the basis of these data a decision is made either to attempt a portacaval shunt or to abandon this approach. The procedure of choice when a shunt cannot be done is uncertain at present. The authors resorted to transesophageal ligation of varices in nine patients. They use Crile's technique, avoiding incisions into the diaphragm to prevent interference with the normal "pinchcock" mechanism in the hope of preventing development of regurgitating esophagitis. The period of postoperative observation is short in all these patients. If remissions afforded by Crile's procedure prove to be too few or too brief, the authors are prepared to turn to esophagogastric resection, perhaps of the type described by Allison and da Silva, in which an esophagojejunostomy is established.

Treatment of Oesophageal Varices in Portal Hypertension by Means of Sclerosing Injections. R. Macbeth. Brit. M. J. 2:877-880 (Oct. 8) 1955 [London, England].

Of 30 patients with esophageal varices who were treated by the author with injections of 3 to 4 cc. of 5% sodium morrhuate at each venipuncture carried out with the aid of a large esophagoscope, 14 had liver damage and 16 were without liver damage. By sliding the esophagoscope downwards for about a centimeter, the maneuver was repeated four or five times at any one session. The treatment usually was repeated every one to two weeks until no veins remained uninjected. Further and immediate hemorrhages, as a result of venipuncture, could be avoided and controlled by the use of hydrostatic bags. Substernal pain occurred but was slight. Venous embolism and allergy to the injection fluid were not observed. Results of injection therapy were disappointing in the patients with severe liver damage. It was often possible to control a particular hemorrhagic incident and apparently to prolong the patient's life, but these patients readily passed into a vicious circle of liver damage with jaundice leading to hemorrhage, which in its turn seemed to predispose to liver failure. It is, however, always worth while to attempt to control even the least hopeful case, especially if active bleeding has recently occurred, until the diagnosis becomes clear or until the patient goes into liver failure. All the patients without demonstrable liver damage remained alive and well for from 11 years to four months after being controlled. Splenectomy makes the veins more readily controllable and should be carried out as an adjunct to injection therapy. Treatment of esophageal varices by sclerosing injections is a safe and satisfactory alternative to major surgery.

The Role of ACTH, Cortisone and Hydrocortisone in Surgery. W. E. Abbott, H. Krieger and S. Levey. Ann. Int. Med. 43:702-730 (Oct.) 1955 [Lancaster, Pa.].

On the basis of an extensive review of the literature (222 reports), the authors summarize both the therapeutic benefits and the dangers associated with the use of corticotropin, cortisone, and hydrocortisone in surgical patients. The first and largest part of this report is concerned with the use of corticotropin, cortisone, and hydrocortisone as therapeutic agents (1) for the production of remissions and gaining of time for preparation of patients undergoing surgery, for instance in ulcerative colitis and hemolytic anemia; (2) for the treatment of surgical disorders and complications such as pancreatitis, tetanus, thrombophlebitis, thyroid crisis; (3) for patients with adrenal insufficiency or inability to respond normally to stress because of prior therapy with corticotropin or adrenal steroids (patients with adrenal cortical hypofunction [Addison's disease], those who have been subjected to adrenalectomy, patients with Waterhouse-Friderichsen syndrome, and those who had suppression of the pituitary or the adrenals due to previous endocrine therapy); (4) for study of endocrine therapy in shock and peritonitis; and (5) for partial or total adrenalectomy. The second part of this review takes up the factors governing the metabolic response of the patient to stress and the third part, the contraindications and dangers involved in the treatment with corticotropin and the adrenocortical hormones. In patients who have acute or chronic insufficiency as the result of disease or surgical extirpation of the adrenal glands, the use of cortisone or hydrocortisone is mandatory. In other patients these hormones may be of value in avoiding operation, improving the preoperative status, or relieving some of the postoperative complications. It should be remembered that, when these hormones are given to surgical patients, they can produce a wide variety of responses, many undesirable. It is also apparent that more studies are needed before these compounds can be used for some of the conditions for which they have been advocated.

Surgical Considerations of Dissecting Aneurysm of the Aorta. M. E. De Bakey, D. A. Cooley and O. Creech Jr. Ann. Surg. 142:586-612 (Oct.) 1955 [Philadelphia].

Reports on dissecting aneurysms of the aorta show that this disease is associated with grave disturbances and a rapidly fatal course in from 75 to 90% of the patients. Its causation has not been determined precisely, but studies of the pathogenesis and pathology suggest that the underlying predominant lesion is degeneration of the elements of the media. The dissection commonly begins as a transverse tear in the intima and media a few centimeters above the aortic valves or in the descending thoracic aorta near the origin of the left subclavian artery. Once this occurs, separation of the intramural layers of the aorta by the forceful stream of blood produces dissection, usually at the junction of the middle and outer thirds of the media, and progresses distally, involving all or a portion of the circumference of the aorta. While the extent and course of dissection vary, in general three patterns of the disease may be recognized. In the most acute and severe form there is rapid dissection and terminal perforation through the adventitia, with death in a few hours or days. In the subacute type the process may begin abruptly but then progress gradually over a period of days or weeks with terminal rupture and death. In the chronic form, reentry of the dissected passage into the lumen of the aorta usually takes place thus forming a double-barreled aorta. Increasing awareness of the problem and recognition of the characteristic clinical manifestations (acute arterial insufficiency of the lower extremities) should lead to more frequent early diagnosis. Roentgenologic studies are particularly valuable in supporting the diagnosis, and it often can be confirmed by angiography, which characteristically reveals a double shadow representing the true and false aortic lumens. Treatment has been almost entirely symptomatic and unsatisfactory, and the few previous attempts to attack the problem surgically have all failed. The rationale of the surgical procedures employed by the authors in five men between the ages of 43 and 72 years and in one 40-year-old woman with dissecting aneurysm of the aorta is based on nature's method of healing in which spontaneous reentry of the dissected passage at some distal point in the aorta permits restoration of peripheral circulation and removes the increasing tension on the outer wall, thus preventing its rupture. This may be achieved by one of several surgical approaches utilizing essentially similar underlying principles. In cases in which the dissection begins on the ascending or descending part of the aortic arch, the creation of a reentry passage into the aortic lumen above, with obliteration of the false passage below, is achieved by cross clamping the descending thoracic aorta, dividing it completely between clamps, obliterating the false passage below by approximating the outer and inner layers, excising a small segment from the inner intimal and medial layer above to produce reentry of the outer lumen, and then completing the procedure by end-to-end anastomosis. In other cases in which the lesion is fairly well localized or arises at or below the level of the left subclavian artery, this procedure may be combined with excision of the segment involved in the origin of the dissection and completed with end-to-end anastomosis or insertion of an aortic homograft. In four of the six patients recovery was uneventful and results were gratifying. The two other patients died; in one, death occurred on the eighth postoperative day from rupture of the outer wall of the dissecting aneurysm, presumably resulting from inability to control hypertension. The other death was caused by the consequences of ventricular fibrillation precipitated by tension pneumothorax and hypothermia.

Arterial Homografts: A Comparison of the Results with End-to-End and End-to-Side Vascular Anastomoses. R. R. Linton and C. V. Menendez. Ann. Surg. **142**:568-585 (Oct.) 1955 [Philadelphia].

An analysis of the results obtained by the authors with 20 arterial homografts, preserved by the frozen irradiated technique and implanted by the end-to-end method of anastomosis to restore the continuity of the femoral arteries in 16 patients with segmental occlusion of these blood vessels secondary to atherosclerosis, revealed a disappointingly low number of successes, since 12, or 60%, had failed within six months, and only 8, or 40%, were still functioning after periods of 8 to 20 months. The mean age of the patients in whom the grafts remained open was 63 years, while 58 years was the average age of the patients in whom the grafts failed. The length of the grafts varied from 15 to 60 cm. with a mean of 39 cm. for the open grafts as compared to 30 cm. for the failures. The older patients and the longer grafts seemed to have done better. The results obtained with the Cockett modification of the Kunlin method of the end-to-side type of anastomosis in a comparable group of 16 arterial homografts, preserved by the same method and implanted as bypass grafts in 15 patients with similar but more extensive lesions of the femoral arteries, showed a definite improvement, since none of the grafts became occluded and the only failures occurred secondary to sepsis in two patients. A longer follow-up of the patients with end-to-side type of anastomosis is necessary to obtain a true evaluation of this method of arterial anastomosis; the 13 (81%) of the 16 grafts that are still functioning have been followed only for from one to eight months. The mean age of the patients in whom the grafts remained open was 60 years, while 57 years was the average age of the patients in whom the grafts failed. The length of the grafts varied from 23 to 60 cm., with a mean of 41 cm. for the open grafts as compared to 55 cm. for the failures. It should be noted that the lesions in most of the patients in whom the end-to-side anastomosis technique was used were much more extensive than in the group with end-to-end method, so that in most of the former it would have been impossible to implant the homografts by the latter method. The end-to-side method of arterial anastomosis proved of great value in anastomosing the limbs of aortic bifurcation grafts to the iliac, femoral, or popliteal arteries. The incidence of immediate thrombosis of these anastomoses, as compared to the ones constructed by the end-to-end method, was reduced from 21 to 3%. It is recommended that the end-to-end method of anastomosing an arterial homograft, preserved by the frozen irradiated technique, to arteries such as the external iliac, femoral, and popliteal arteries, be abandoned in favor of the end-to-side method described and that the end-to-end method be reserved for large arterial anastomoses such as for the aorta and common iliac arteries.

The Use of Plastic Fabrics as Arterial Prostheses. E. J. Poth, J. K. Johnson and J. H. Childers. Ann. Surg. **142**:624-632 (Oct.) 1955 [Philadelphia].

Experiments in animals and limited trials in human beings showed that arterial prostheses made from inert synthetic fabrics have definite advantages over arterial homografts in the repair of major arterial defects. The materials are readily available and inexpensive. The implants can be tailored to fit the vessels of the host. Nylon is the best of the materials studied. Nylon prostheses with multiple thickness walls are as well tolerated as a single thickness of fabric and assure a greater factor of long-term safety. The prosthesis used consists of an "inner liner" or inner tube, and an external "wrap around." The inner liner is tailored accurately to fit the dimensions of the host's artery. The outer, reinforcing wrap around is applied after the inner liner has been sutured in place, the circulation reestablished, and the conduit demonstrated to have no leaks. The nylon fabrics are carefully "boiled off" in clear water and detergent solutions and then rinsed repeatedly in distilled water before being fashioned into the prosthesis. Since these prostheses can be made aseptically while the segment of vessel to be replaced is being excised, there is neither loss of time nor the need to have any materials available other than the fabrics to be utilized. Multiple layered prostheses have been implanted to replace peripheral and abdominal arteries, including both the bifurcation of the aorta and iliac arteries in their entirety. The immediate results are generally satisfactory but determination of ultimate value must depend on long-term clinical observation. Further clinical trial is justified.

NEUROLOGY & PSYCHIATRY

Immunity to Poliomyelitis: An Investigation Among School Children at Como in Western Australia. D. J. R. Snow, G. R. A. Raad, J. F. Woolcott and others. M. J. Australia **2**:485-488 (Sept. 24) 1955 [Sydney, Australia].

After many years of sporadic disease, an epidemic of poliomyelitis occurred in Perth during 1948. The attack rate was approximately 60 per 100,000 of the population, and the total number of notifications recorded was 311. Half the patients were aged under 10 years. The vast majority of all the cases notified were paralytic, the case fatality was 8%, and the proportion of survivors with residual paralysis was about 40%. The disease prevailed in endemic form during the next five years, with an annual attack rate of 11 or 12 per 100,000, and a second epidemic developed in February, 1954. The attack rate was about 70 per 100,000 of the population, 436 notifications being registered. About 36% of all patients were less than 10 years old. Paralysis developed in only 45% of the patients. The case fatality was 1%, and survivors with residual paralysis constituted about 20%. Fecal specimens from 10 of the earliest cases were found to contain poliomyelitis virus with the characteristics of the type 1 or Brunhilde strain. This epidemic was unique in that, while it was in progress, large crowds assembled on six successive days to witness various functions connected with the Royal visit and that, despite these increased opportunities for infection, increased incidence of disease did not occur. Serologic tests for immunity were undertaken at periodical intervals throughout the epidemic on the children of one school to find out what change, if any, took place in the relative proportion of immune subjects. During the course of the epidemic, 46% of children at the school had high antibody levels to type 1 virus, but two subsequent examinations carried out during the ensuing five months revealed little change in this proportion. These findings were unexpected. Where a progressive increase in the proportion of immune subjects was anticipated, no such increase was found. There are several arguments against the suggestion that the investigation was commenced too late and that the majority of those exposed became infected before the first blood test. The investigation began within a week of the detection of clinical poliomyelitis in the school. The epidemic itself had been in progress for less than five weeks. Poliomyelitis virus was present in the school sewage when the investigation was undertaken. The serums of over half of all children tested gave negative findings, that is, virus was present in the environment of many susceptible children without serologic indications of progressive infections. It is possible also that the transference of infection was interrupted by the intense hand-hygiene campaign and other control measures that were instituted during the epidemic. While this may have played an important part in reducing the number of infections, it seems unlikely that it was the entire explanation. It is possible that the laboratory techniques used had limitations and failed to disclose immunizing infections of minor degree.

Towards Safer Angiography. C. B. Sedzimir. J. Neurosurg. **12**:460-467 (Sept.) 1955 [Springfield, Ill.].

The 273 carotid angiograms reviewed were performed on 169 patients by the percutaneous method under general anesthesia. Arteriodone, a 42.5% watery solution of diethanolamine salt of diodone, was used in all cases. There were no deaths and no complications in this series. This record is compared with literature reports on 3,128 angiograms performed since 1950, in which there were 22 deaths (0.7%), 23 patients (0.7%) with permanent complications, and 58 patients (1.9%) with transient complications. Only one other series in this group, 150 angiograms performed by Ver Brugghen, was free from complications. In the author's opinion the most important factors making for the safety of the technique are (1) the employment of general anesthesia, (2) the small amount of fluid injected at a very slow rate between the lateral and axial exposures, and (3) the withdrawal of the needle from the artery for the 10 minutes during which the plates are developed and inspected. It seems highly significant that both Ver Brugghen's and the present series were performed on anesthetized patients and that they were the only two free from all complications. The use of anesthesia was the most outstanding single factor in the technique by which these two series differed from all the others reviewed.

Early Diagnosis of Phenylpyruvic Oligophrenia. W. Frischknecht. Schweiz. med. Wchnschr. **85**:969-970 (Oct. 1) 1955 (In German) [Basel, Switzerland].

A form of oligophrenia in which the urine contains phenyl pyroracemic acid was first described in 1934. This urine assumes an olive green color when a few drops of a 5% solution of ferric chloride is added. This reaction of the urine, which persists for a few minutes, is pathognomonic for phenylketonuria, and so far has never been observed in persons of normal intelligence. About 90% are either idiots or imbeciles, and the remaining 10% are of slightly higher intelligence but still defective. While nothing definite is known about the incidence of this form of oligophrenia in Switzerland, the author says that 200 cases were found among 20,000 institutionalized mental defectives in the United States. Recently it has been established simultaneously by several investigators that the biochemical anomaly of this form of oligophrenia can be corrected by a diet with a low phenylalanine content. This diet has a favorable effect on the mental development, epileptiform convulsions cease, the electroencephalogram becomes normalized, and the extrapyramidal disturbances show improvement. This suggests a pathogenetic connection between the cerebral disturbances and the biochemical anomaly. Infants with congenital phenylketonuria may show normal development for the first six or seven months. During this period only the ferric chloride test of the urine will reveal the diagnosis. The peculiar odor of the skin, which suggests the odor of mice, will appear suspicious only to those who have had experience with this defect, particularly if the child is light blond, has a pasty appearance, and shows a predisposition to dermatitis. In infants over 6 months of age, signs of mental retardation will become evident. Growth of the cranial portion of the skull is retarded in comparison with the growth of the facial part (microcephalism combined with cherubic face). Choreoathetoid and myoclonic forms of hyperkinesia may appear, and epileptiform convulsions and rigidity are frequent. The author presents observations on two children with this form of oligophrenia. Both children had a pasty appearance and were mentally retarded. Photographs show the cherubic expression, and in both the ferric chloride test of the urine was strongly positive. In one of the children hypothyroidism had been suspected at first. No satisfactory infant diet with a low phenylalanine content is as yet available in Switzerland, but the author tried a diet with a low protein content, in which milk was restricted and meat and cheese completely eliminated. This diet was tried in one of the two children and apparently produced some improvement.

Stilbamidine Isethionate Therapy of Tic Douloureux. B. Woodhall and G. L. Odom. J. Neurosurg. **12**:495-500 (Sept.) 1955 [Springfield, Ill.].

The use of stilbamidine in tic douloureux was begun on the basis of the observation that in patients treated with therapeutic doses of stilbamidine varying degrees of hypesthesia and hypalgesia develop over the face and over the upper cervical sensory dermatomes from two to five months after the termination of therapy. When administered properly, stilbamidine is not otherwise toxic, but solutions of the drug become markedly toxic and progressively lose their therapeutic potency upon exposure to ultraviolet radiation. When such unstable solutions are used, irreversible hepatic and renal injury may occur. The present series of 41 patients were selected from a total of 71 patients treated in the Duke Hospital over the years 1953 and 1954 for the pain of classical tic douloureux. The period of post-therapy observation has ranged therefore from two years to nine months. Stilbamidine isethionate, 0.15 gm., was freshly dissolved in 150 cc. of 5% glucose and distilled water and given intravenously over a period of one hour. Transient shock-like reactions associated with a more rapid administration of this drug have been reported but were not observed in this group. The course of therapy consisted of 10 daily injections for a total dosage of 1.5 gm. of the drug. The pain of tic douloureux was controlled in 36 of the 41 patients. In a small percentage of cases, unpredictable formication and paresthesias occur over the face, which tend to decrease the potential value of this therapeutic agent. The deferred action of the drug in patients with severe and unrelenting tic pain is a severe trial to both patient and physician and may necessitate provisional methods of control before the onset of the chemical neuropathy. Although this drug in its intravenous form may not be the definitive medical therapy for tic douloureux, it represents a very valuable adjunct to the care of this often complex pain syndrome.

PEDIATRICS

Action of ACTH on Immunization and on Protein Picture of Children Vaccinated with Diphtheritic Anatoxin. E. Bottone, L. Poli and G. Fascione. Arch. ital. pediat. e puericolt. **17**:263-297 (No. 4) 1955 (In Italian) [Bologna, Italy].

The authors report the results of studies on normal children vaccinated with diphtheritic anatoxin in whom they studied the action of corticotropin (ACTH) on the process of immunization. Ten children were given, commencing on the day of the vaccination, 30 mg. of the hormone for 10 days and 15 mg. for another 10 days. Nine children served as controls and received injections of isotonic sodium chloride solution in daily doses that were equal to those of corticotropin. Blood samples were collected from all the children before and 10, 20, and 30 days after the vaccination. Comparison of the average increase of the serum antitoxin titer in the two groups of children did not reveal significant changes in the first 20 days, but after 30 days the increase was more marked in the children who had received the hormone. The antitoxin titer increase was marked (100 times greater than the initial value) in 60% of them, moderate (50 times greater) in 30%, and slight in 10%. The respective figures for the controls were 40%, 20%, and 40%. These results, unlike those of other workers, indicate that corticotropin does not inhibit the immunization process. Electrophoretic studies showed a constant and progressive decrease in the total protein level of children who received the hormone, whereas in the controls the most marked fall occurred on the 10th day after the vaccination. In both groups the changes in the total protein level were correlated with the variations in the albumin and globulin level. The decrease in the albumins was less marked in the children who had received the hormone, in whom the globulins had increased slightly by the 10th day, returned to the initial values by the 20th, and decreased slightly by the 30th. In the controls the globulins had increased by the 20th day and decreased below the initial values by the 30th day. No parallelism was found in the two groups of children between the gamma globulin and the antitoxin levels.

Immobilization of Extension Supracondylar Fractures of the Elbow in Children. D. G. Wright. Glasgow M. J. **36**:294-297 (Sept.) 1955 [Glasgow, Scotland].

When supported by a collar-and-cuff sling, the reduced supracondylar fracture is subjected to deforming forces that may result in redisplacement. First, since the plane of the shoulder joint lies at an angle of 60 degrees to the coronal plane of the body, approximation of the flexed arm to the front of the thorax results in internal rotation of the distal fragment. Second, the inward pressure of garments upon the proximal fragment, in association with the counter-pressure of the thoracic wall upon the medial epicondyle, predisposes to displacement laterally, particularly if the fracture line slopes upwards and laterally. Finally, to take postreduction films, the radiographer must undo the collar-and-cuff and subject the limb to movements liable to cause redisplacement of an unstable fracture. To reduce the risk of redisplacement, the author cuts a cross into the center of a rectangular piece of Gamgee. The patient's head is passed through the cross, and the fore and aft flaps of Gamgee are bandaged lightly to the chest wall to form a protective waistcoat. A long calico bandage is centered across the shoulder of the unaffected side, and the two ends are carried across the patient's back to cross one another. The fracture is then reduced by the standard Robert Jones technique and a posterior plaster slab applied. The patient is then rolled onto the unaffected side and the limb immobilized in the desired position by means of the calico bandage, which is taken across the chest, looped through the bandage on the sound shoulder, and tied in a convenient position on the front of the chest. The patient is dismissed from the hospital within a few days, with clothing worn over the affected limb draped loosely. No redisplacement resulted in more than 50 patients in whom the author employed this method of immobilization.

UROLOGY

Studies in Urolithiasis: IV. Urinary Glucuronosides and Calcium Phosphate. E. L. Prien and B. S. Walker. J. Urol. 74:440-446 (Oct.) 1955 [Baltimore].

For the last 20 months acetylsalicylic acid has been given orally in tablets of 2 gm. daily in three divided doses to 19 ambulatory patients with histories of recurrent calcium-containing calculi. The drug was given in addition to the usual dietary measures. Comparison of plain urograms of the kidneys, ureters, and bladder, excretory urograms, or both, obtained after a year or more of treatment, with those obtained before treatment with acetylsalicylic acid was started revealed that no growth or new formation of calculi occurred over a period of 12 to 18 months in 17 of the 19 patients. A major objective in the treatment of these patients was the prevention of supersaturation of the urine with stone-forming substances. Evidence from biochemical literature indicates that the solubility of calcium phosphate in the urine is increased by the presence of higher concentrations than normal of urinary glucuronosides. This was the principle of the authors' new therapeutic approach to the problem of recurrent calcium-containing stones. The output of total glucuronic acid ranged from 0.2 to 0.9 gm. per 24 hours in the patients who had not started aspirin therapy. While the patients were receiving aspirin, the outputs ranged from 0.6 to 2.2 gm. per 24 hours. It was almost always possible to double the output and frequently to triple and quadruple it. In one of the patients, there was a slight increase in size of his small renal calculi after 18 months of treatment; it seems reasonable to conclude that he was a poor glucuronoside producer or that there was excessive destruction of glucuronosides by bacterial action. The one remaining patient was a complete therapeutic failure, although his glucuronoside production was excellent. This patient differed from the other 18 in the composition of his calculi. The other patients had produced stones composed chiefly of the usual type of calcium phosphate, or apatite stone. The patient in whom the therapy failed had calculi composed of acid calcium phosphate; this compound occurs in less than 2% of human renal calculi. There have been relatively few undesirable side-effects of aspirin therapy in the authors' patients. Of the numerous substances that augment the output of glucuronosides in the urine, derivatives of salicylic acid such as acetylsalicylic acid and salicylamide appear to be highly effective and relatively nontoxic.

Prostatic Carcinoma: Treatment of Advanced Cases with Intravenous Diethylstilbestrol Diphosphate. R. H. Flocks, H. Marberger, B. J. Begley and L. J. Prendergast. J. Urol. 74:549-551 (Oct.) 1955 [Baltimore].

Diethylstilbestrol diphosphate was given to 66 patients with carcinoma of the prostate. Thirty-four of these, with advanced disease, had failed to respond or had become refractory to the usual estrogens. Twelve patients with advanced carcinoma of the prostate had had no previous hormone therapy. In the remaining 20 patients with less advanced disease, diethylstilbestrol diphosphate was used as an adjunct to other therapy. The drug was administered in doses ranging from 250 mg. to 1,250 mg., the average dose being 500 mg., given in an intravenous infusion of isotonic sodium chloride solution or dextrose 5% in water, the total volume of which ranged from 200 to 500 cc. The average rate of administration was 300 cc. per hour, and generally one or two infusions were given daily. A course of therapy ranged from the common of 5 days to the exceptional of 20 days, depending on the rapidity of the clinical response. Repeated courses were given usually at monthly intervals. The number of treatment courses varied from 1 to 11. Thirty-eight patients had only a single course. The highest total dose administered was 31,500 mg. Of the 46 patients with advanced disease, 7 improved as evidenced on palpation of the prostate by softening or decrease in size of the gland, 38 were unchanged, and one became worse. Only one patient showed demonstrable evidence of improvement of evident pulmonary parenchymal metastases, and 12 showed progression of bony metastases despite therapy. Of 31 patients with elevated serum acid phosphatase levels, these levels returned temporarily to normal in 20, while further elevation was observed in 4 at the completion of treatment. The untoward effects were limited to irritability of the gastrointestinal tract and were observed in 17 patients. These untoward effects could largely be prevented or reduced by very slow initial infusion of the drug. The results obtained showed that the drug was relatively nontoxic and that very high blood levels could be obtained. It was also shown that either the elevated blood level or possibly additional concentration within the area of the prostate had an effect over and above ordinary estrogen therapy. While diethylstilbestrol diphosphate given intravenously is well tolerated and benefits an appreciable percentage of patients with advanced carcinoma of the prostate, even after other estrogens have failed, further studies with regard to its mode of action, duration of effect, and optimum dosage are indicated.

THERAPEUTICS

Therapy of Ascariasis with Piperazine. H. W. Brown. Am. J. Trop. Med. 4:947-952 (Sept.) 1955 [Baltimore].

Piperazine (diethylenediamine) has been shown to be remarkably effective in the treatment of Ascaris lumbricoides infections. Three groups of children so infected were treated according to different dosage schedules for one, two, or five days to see whether treatment with a larger dose for one or two days would be as effective as treatment with smaller doses for longer periods. A single-dose treatment would obviously be advantageous for public health mass treatment campaigns or for use in hospital outpatient clinics. Adults have been given from 2.0 to 3.5 gm. of piperazine hexahydrate daily for 14 days without ill-effects; consequently, a maximum dose of 3.5 gm. for 1 or 2 days was considered safe for use in these trials. Proof that treatment for two consecutive days was much more effective than treatment for one could be followed by a program in which a physician would administer the first dose and give the patient an additional safe amount to be taken at home the next day. The piperazine citrate used in this study was supplied as a flavored syrup, each cubic centimeter of which contained 100 mg. equivalent of piperazine hexahydrate. Each dose was followed by an equal amount of water poured first into the graduate used in measuring the dose and then into the paper cup from which it was taken, so that none of the syrup was left. The one-day and two-day treatments were given from one and one-half to three hours after breakfast. Divided doses, one in the morning and one in the afternoon, were used in the five-day treatment. No special diet was suggested, pretreatment fasting was not required, and no purgatives were used. The pleasant-tasting syrup was readily accepted; only one patient complained of side-effects consisting of nausea and abdominal cramps; and no child interrupted his course of therapy, although many of them walked considerable distances to and from school. The doses given varied according to the patient's weight, ranging from 2 to 3.5 gm. daily for the one-day and two-day treatments and from 0.5 to 2.0 gm. daily for the five-day treatment. The cure rates in the various groups were: one-day treatment, 74%; two-day treatment, 94%; and five-day treatment, 91%. The one-day treatment thus proved less effective than either the two-day or the five-day treatment. The two-day and five-day treatments were almost equally effective; however, the two-day treatment not only is shorter but also takes about 50% less of the drug.

Triethylene Melamine in Hodgkin's Disease (Malignant Lymphogranulomatosis). H. Høst and G. Qvigstad. Nord. med. 54: 1383-1385 (Sept. 8) 1955 (In Norwegian) [Stockholm, Sweden].

Five patients with Hodgkin's disease (lymphogranulomatosis) were treated with triethylene melamine (TEM) in Vestfold Hospital. There was no effect in the two previously untreated patients, one with localized form of Hodgkin's disease and good general condition and one with an extensive glandular swelling and slightly impaired general condition; both later reacted well to roentgen treatment. The three patients with generalized forms of the disease received continuous treatment for from 8 to 17 months, with clinical remissions for from 6 to 15 months. In two of the cases no hematological changes were demonstrable before the terminal stage; in one case an intractable aplastic anemia developed after a total dose of 85 mg. of TEM, in the other case leukopenia and thrombocytopenia were demonstrated shortly before death after a total dose of 420 mg. of TEM. The hematological changes are ascribed to roentgen and TEM treatment. In the third case the blood values remain satisfactory after 15 months' treatment, during which a total dose of 275 mg. has been administered. In advanced generalized or radioresistant forms of Hodgkin's disease attempted treatment with triethylene melamine is indicated, with close hematological control. To what extent the substance can be given as a maintenance treatment is still an open question.

PATHOLOGY

Cytology of Esophageal Washings: Evaluation of 364 Cases. W. D. Johnson, L. G. Koss, G. N. Papanicolaou and J. F. Seybolt. Cancer 8:951-957 (Sept.-Oct.) 1955 [Philadelphia].

The authors report the results of their studies of one or more esophageal washings of 364 patients with malignant and benign diseases of the esophagus, the final diagnosis of which was established either by pathological examination of tissue or by satisfactory radiological and clinical evidence. Of 148 patients with malignant tumors primary in the esophagus, cytological examination yielded a positive diagnosis of cancer in 103 (69%). In 18 patients (12.2%), cytological examination yielded a diagnosis of "suspicious." In 27 patients (18.2%) a report of "negative" smears was made. Thus in 30.4% of cases it was not possible to make a definite diagnosis of cancer of the esophagus by the cytological method. The failure in most cases was caused by the absence or extreme scarcity of tumor cells in the submitted specimens. Of 81 patients with malignant tumors primary in organs other than the esophagus, mainly in the stomach, cytological examination yielded a positive diagnosis of cancer in 25, whereas in 44 a report of "negative" or "insufficient for diagnosis" and in 12 one of "suspicious" was made. In 3 of the 135 patients in whom no malignant tumor was demonstrated, the cytological diagnosis of a positive smear was made, representing 0.8% of the total of 364 patients. In 125 of the 135 patients, cytological examination yielded a report of "negative," and a report of "suspicious" was made in 7. In 85 (57.4%) of the 148 patients with malignant tumor primary in the esophagus, both cytological examination and biopsy yielded a positive diagnosis of cancer; in 32 patients (21.7%) biopsy yielded a positive diagnosis of cancer, while cytological examination was negative or inconclusive. In 18 patients (12.2%) cytological examination yielded a positive diagnosis of cancer, while biopsy was either negative or not done. In 13 patients (8.8%), biopsy was either negative or not done and cytology was negative or inconclusive, so that neither method established the diagnosis. The authors believe that cytological examination of esophageal washings is useful and dependable. It is not suggested that it can replace biopsy; however, it may prove of particular value in cases in which, for various reasons, biopsy is not practical. Concomitant use of cytological examination and biopsy may spare the patient the suffering and expense of a repeat esophagoscopy. Special attention is drawn to the cytology of severe esophagitis of long standing, which is the most important source of diagnostic errors.

Studies in Rheumatic Fever: I. The Clinical Significance of the Aschoff Body Based on Morphologic Observations. C. G. Tedeschi, B. M. Wagner and K. C. Pani. A. M. A. Arch. Path. 60:408-422 (Oct.) 1955 [Chicago].

The authors report observations made on 400 biopsy specimens from left auricular appendages removed in the course of surgical intervention on the hearts of patients with a preoperative diagnosis of chronic mitral valvular disease of rheumatic origin. The pathological findings led to a classification of the cardiac biopsy specimens into two main categories, namely, active rheumatic carditis and healed or healing rheumatic carditis. Of the 400 appendages, the rheumatic process was considered active in only 8 (2%), with an exudative type of inflammatory reaction in the Aschoff body, in the endocardium, or in the myocardium (independently from mural thrombosis); alteration of collagen fibers; and presence of "fibrinoid" in the ground substance. Damage of myofibers was a concurrent change, and, since these unequivocal signs of acute inflammation were in every instance accompanied by endocardial and myocardial fibrosis, this combination of recent and old lesions was interpreted as representing a condition of chronic rheumatic carditis with reactivation. In the absence of these changes and in the presence of senescent Aschoff bodies and of endocardial or myocardial fibrosis, the rheumatic carditis was considered in a healed or healing stage; of the 392 appendages in this category, 67 (16.8%) showed Aschoff bodies. It is indicated that the Aschoff body *per se* is not a reliable exponent of rheumatic activity. In the life cycle of rheumatic carditis, the earliest injury is a fibrinoid alteration of the ground substance. Exudative inflammatory reaction, myofiber necrosis, swelling, and fragmentation of collagen fibers are associated features of the early phases of the rheumatic process. The transition to the chronic phase is characterized by the appearance of senescent changes within the Aschoff body and progressive endocardial and myocardial fibrosis. Reactivation of the rheumatic process is accompanied by the appearance of fresh lesions as shown in the active carditis group by the association of old and recent alterations. Except for elevation of the erythrocyte sedimentation rate, which correlated with the pathological classification, no clinical or laboratory indication of preoperative activity was found in any of the patients, including the eight who showed unequivocal evidence of acute carditis in the biopsy specimen. The postoperative course also failed to reveal in any of the patients signs, symptoms, or laboratory data suggesting recrudescence of the rheumatic process, and patients with microscopically active disease did not show any increase in operative mortality or morbidity as compared with patients with microscopically inactive disease. It is suggested that the discrepancies between the morphological and clinical manifestations of rheumatic activity can be caused by the widespread therapeutic use of steroid hormones and antibiotics. These agents may alter the individual response with little effect on the underlying disease process. In 22 patients who died shortly after the surgical intervention, the findings in the biopsy specimens agreed with those observed in other portions of the heart.

Studies in Rheumatic Fever: II. Origin of Cardiac Giant Cells. B. M. Wagner and C. G. Tedeschi. A. M. A. Arch. Path. 60: 423-430 (Oct.) 1955 [Chicago].

Two types of cardiac giant cells were observed in a microscopic study of 400 biopsy specimens of left auricular appendages removed in the course of mitral commissurotomy and of 30 hearts removed on autopsy from the cadavers of patients who had died of polyarteritis nodosa, lupus erythematosus disseminatus, generalized scleroderma, generalized sarcoidosis, giant cell myocarditis, and chronic rheumatic valvulitis and myocarditis respectively. One type of giant cell was that specific for rheumatic fever, i. e., the major component of Aschoff bodies in the myocardium as well as in areas devoid of muscle. A second type of giant cell appeared to develop from damaged myofibers and was noted in cases of rheumatic fever, giant cell myocarditis, polyarteritis nodosa, and lupus erythematosus. The Aschoff giant cell is derived from the reticuloendothelial system as a specific response to primary connective tissue injury. The myogenic type of giant cell may develop in any area of myofiber degeneration as a limited attempt at regeneration and is a nonspecific response.

BOOK REVIEWS

The Hemorrhagic Disorders: A Clinical and Therapeutic Approach. By Mario Stefanini, M.D., Associate Professor of Medicine, Tufts University School of Medicine, Boston, and William Dameshek, M.D., Professor of Medicine, Tufts University School of Medicine. Cloth. $11.75. Pp. 368, with 147 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W.C.1, England, 1955.

The authors of this book have aimed to meet the needs of the practicing physician in the field of hemorrhagic disorders. They state that in many past treatises on the subject "undue emphasis [was] placed on disorders of the coagulation mechanism, at times to the exclusion of other disturbances of the hemostatic mechanism." In this case, however, the authors have succeeded in presenting all factors involved in the complex mechanisms responsible for abnormal bleeding. They stress the clinical approach and therapy. The aid rendered by the laboratory is not neglected, but it is made clear that, significant as they are, laboratory studies are only one phase of the management of the patient. The first chapter deals with the normal hemostatic process. Classification, vascular defects, thrombocytopenias, coagulation, combined disturbances, anticoagulants, fibrinolysis, obstetric problems, dysproteinemias, treatment, and heredity are covered in the other chapters. The appendix deals adequately with laboratory procedures.

Some of the figures are illustrations and some are charts and graphic presentations of subjects and case histories. In addition, there are 37 tables that summarize the more complex and difficult subjects. All illustrative data are well chosen and extremely helpful. The bibliography includes 753 judiciously selected items. The index is well organized and has ample cross references. The authors are eminently qualified to discuss the material, and the subject is clearly and adequately presented. Abstruse phases have been left out, and the results are most satisfactory. In this respect the monograph is in a class by itself. It can be recommended to practicing physicians and to students of hemorrhagic disorders as one of the best, if not the best, available.

The Luminescence of Biological Systems. Edited by Frank H. Johnson. *Proceedings of Conference on Luminescence* March 28-April 2, 1954, sponsored by Committee on Photobiology of National Academy of Sciences-National Research Council and supported by National Science Foundation. Cloth. $7. Pp. 452, with 161 illustrations. American Association for the Advancement of Science, 1515 Massachusetts Ave., N.W., Washington 5, D. C., 1955.

This volume is a report of a conference that was limited to a small group of the leading investigators in the field of luminescence. The book includes a survey chapter on the prospects and problems of bioluminescence; a number of chapters on the application of recent interpretations of electronic states and transitions to the role of chlorophyll and other photosynthetic pigments in energy transfer; a chapter dealing with the chemiluminescence of 2,3-dihydrophthalazine-1,4-diones; a chapter on the spectroscopic investigations of luminescent systems (chiefly on the firefly and luminescent bacteria), including discussions on purification and properties of luciferase, inhibition and activation of luminescence, and physiological control of luminescence; a single chapter describing the luminous organisms of Japan and the Far East; and two final chapters dealing with the ecology of marine dinoflagellates and "red water" conditions. The volume includes both author and subject indexes.

A History of the Texas Medical Association, 1853-1953. By Pat Ireland Nixon, M.D. Foreword by Merton M. Minter, M.D. Cloth. $6. Pp. 476, with illustrations. University of Texas Press, Austin 12; Thomas Nelson and Sons, Ltd., Parkside works, Edinburgh 9, Scotland; Société française d'éditions Nelson, 25 rue Henri Barbusse, Paris 5e, France, 1953.

In 1853, when the United States was about 70 years old and the state of Texas about 7, the Texas Medical Association was founded by 35 physicians. This proved to be premature; because of the great distances, the danger of attack by Indians, and the difficulty of travel in those days, the association lapsed into inactivity for 16 years. Since then its membership has grown to nearly 6,000. The story of this growth is linked in this book with the growth and development of the state. In the early days of the association, quackery was rife, and a long and vigorous fight against chiropractic and other forms of irregular treatment was waged. More recently just as valiant a fight has been made against socialized medicine. The author has gathered most of his information from the pages of the *Texas State Journal of Medicine* and the earlier proceedings and transactions of the association. All but two of the illustrations are portraits of persons, and most of them were presidents of the association. Most of the index is made up of proper names. Much space in the text is devoted to such material as lists of titles of medical papers read at meetings and lists of names of members and delegates to American Medical Association conventions. Grandiloquent speeches are quoted to give the flavor of the local oratory of the times. The appendix gives the association's constitution and bylaws and an act to regulate the practice of medicine proposed to the state legislature in 1873 and passed in the same year. Although interesting in places to the general reader, this book will be of great interest to only a limited group.

Suprapubic Prostatectomy with Primary Closure of the Bladder by an Original Method: Preparation, Technique, and Post-Operative Treatment. By Univ.-Prof. Dr. Theodor Hryntschak. Authorized translation by Noble S. R. Maluf, M.S., M.D., Ph.D., Chief of Urology, Surgical Service, Veterans Administration Hospital, Houston, Texas. (Completely revised.) Cloth. $8.50. Pp. 187, with 36 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1955.

Surgical treatment of prostatic obstruction has been variously modified since the first complete prostatectomy performed by Fuller about 75 years ago. The two methods widely used today, transurethral resection and retropubic prostatectomy, have been developed in the past decade. The operation described by Hryntschak is based on the suprapubic prostatectomy suggested by the Australian urologist, Harris, who advocated closure of the bladder immediately after prostatic enucleation. This method was tried by a number of urologists but was given up because of postoperative hemorrhage and the frequent occurrence of suprapubic fistulas. Hryntschak was impressed by Harris' theories and set out to develop a surgical technique that would obviate the postoperative complications. He succeeded in doing so, largely by compression of the periprostatic blood vessels through carefully adjusted sutures in the prostatic capsule and by perfecting a purse-string suture around the bladder incision, which rendered it watertight. These and other technical measures are carefully described with the aid of excellent illustrations. The first edition of this book was published in German in 1951. The good results achieved by Hryntschak and the absence of postoperative complications in the author's large series of cases testify to the soundness of his technique. There are still many surgeons who adhere to suprapubic prostatectomy who should find much practical information in this book.

Cancer Cells. By E. V. Cowdry, Director, Wernse Cancer Research Laboratory, Washington University, St. Louis. Cloth. $16. Pp. 677, with 137 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, England, 1955.

This attractive and useful volume is neither a textbook nor a handbook compendium. Rather, it is an extended and reflective essay about cancer cells, about the possible inciters, inhibitors, and modifiers of cancer cells, and about various cancers as diseases. The first seven chapters are devoted to a review and evaluation of our present knowledge of cancer cells, their cytoplasm, their nuclei, their chemistry, and their response to chemical inciters and modifiers. Although experimental cancer is used to exemplify problems in human cancer, it is used for illumination only and is not extrapolated to the human disease.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

Throughout the book technical terms are clearly defined. The hyperplasias, the metaplasias, invasion and metastasis, polyploidy, and pinocytosis are discussed from the standpoint of their etymology and their meaning in cancer pathology. A chapter is devoted to agents, such as x-rays, radium, and atomic radiation, that may cause cells to become malignant as well as to the known or suspected chemical carcinogens such as beryllium and cigarette smoke. For the physician there are carefully documented chapters on heredity and susceptibility to cancer in human beings and on the geographical frequency of specific types of cancer in man. Of interest to all is the last chapter, which originated in the author's presidential report to the American Association of Cancer Research in 1951, on the present trends in cancer research. This is not the first, nor should it be the last, such appraisal of an area in which vast sums of public and private funds have been made available for research. The general impression left by a careful study of this book is good. When, as in this instance, a careful literate, critical, and curious student surveys and evaluates the available accumulated knowledge of cancer cells and malignant disease, the net result must prove useful and informative. The format of the book is good, and the illustrations are excellent and informative. The bibliography is current, representative, and carefully selected.

Röntgendiagnostik im Kindesalter. Von Dr. Franz Schmid, Privatdozent für Kinderheilkunde an der Universität Heidelberg, und Dr. Gerhard Weber, Professor für pädiatrische Poliklinik an der Universität München. Cloth. 147 marks. Pp. 546, with 604 illustrations. J. F. Bergmann, Trogerstrasse 56, Munich 27; [Springer-Verlag, Reichpietschufer 20, (1) Berlin W. 35 (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, Germany], 1955.

This is the largest and best illustrated book on the diagnostic use of x-rays in pediatrics that has appeared in the German language; yet the authors modestly term it a brief summary. They have presented a mine of information set forth in an orderly manner and admirably suited for a manual or textbook. The consideration of the various systems is well balanced. The discussion on congenital heart disease is adequate and timely. Angiocardiography, cerebral angiography, bronchography, encephalography, and cardiac catheterization are all given due attention in relation to their application in pediatric examinations. The section on bronchography includes an especially helpful discussion of dosage of the various medicaments involved in relation to the age and weight of the child. The authors do not share the growing opinion that thymic hypertrophy is relatively unimportant. The printing and binding of this volume are excellent; especially good is the reproduction of the roentgenograms, but, as in most European publications, the roentgenograms are reproduced in the diapositive, as prints from the original films. The Europeans contend that there is less loss of detail in such reproductions, a contention that is undoubtedly correct. No physician should have the slightest difficulty in appreciating these illustrations. The bibliography is extensive and contains numerous references to English and American publications. The latter is a commendable exception to the bibliographic compilations of most continental publications. The book is highly recommended to pediatricians, pediatric roentgenologists, and medical libraries.

J. A. M. A. Clinical Abstracts of Diagnosis and Treatment. [Edited by Noah D. Fabricant.] Published with approval of Board of Trustees, American Medical Association. Cloth. $5.50. Pp. 627. Intercontinental Medical Book Corporation with Brune & Stratton, Inc., 381 Fourth Ave., New York 16, 1955.

This book presents in a compact and permanent form a carefully chosen selection of abstracts culled from the Medical Literature Abstracts section that appears in each edition of THE JOURNAL. It thus provides a convenient synopsis of recent developments in the field of medicine. The selection and arrangement is a practical one for the physician since, with the exception of a small section on physiology, the abstracts are restricted to either diagnosis or treatment and are grouped according to medical or surgical specialties. Unfortunately, the index has been similarly arranged. An alphabetically arranged general index would greatly facilitate coverage of topics that may be common to several specialty fields.

A Textbook of Clinical Pathology. Edited by Seward E. Miller, M.D., Medical Director, United States Public Health Service, Washington, D. C. Fifth edition. Cloth. $11. Pp. 1208, with illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1955.

This textbook is designed to give the medical student, intern, resident, clinical pathologist, and teacher of medicine information on how best to use the clinical laboratory in differential diagnosis and in following the course of disease in patients. This new edition is published with extensive revisions and additions. It has 25 chapters as follows: blood techniques (L. W. Diggs); blood cells and bone marrow examinations (L. W. Diggs); anemias, erythrocytoses, hemoglobinurias, and abnormal hemoglobin compounds (L. W. Diggs); laboratory tests in the diagnosis and management of hemorrhagic and thromboembolic diseases (L. W. Diggs); diseases primarily affecting leukocytes (I. Davidsohn); blood groups and significant tests (I. Davidsohn); blood chemistry (C. Cohn and A. Kaplan); hepatic tests (C. Cohn and A. Kaplan); assay of chemotherapeutic and antibiotic agents (A. Milzer); diagnosis of viral and rickettsial disease (A. Milzer); immunologic tests (R. McBurney); medical bacteriology (A. Milzer); medical mycology (E. S. Moss and A. W. McQuown); medical parasitology (S. E. Miller); assay of vitamins (E. von Haam); assay of hormones (E. von Haam); examination of transudates, exudates, skin, and mucous membranes (E. von Haam); diagnosis of venereal lesions (E. von Haam); serologic tests for syphilis (S. E. Miller); cerebrospinal fluid (S. E. Miller); renal function tests and urine examinations (S. E. Miller); saliva, sputum, and bronchial aspirates (S. E. Miller); gastric and duodenal contents (S. E. Miller); seminal fluid (S. E. Miller); and feces (S. E. Miller). The various chapters cover the material pertinent to each, with indications and directions for test procedures and the interpretation of the results. The illustrations are average in quality. This textbook meets adequately the purposes for which it is designed.

Salivary Gland Tumors. By Donald E. Ross, M.D., F.A.C.S., F.I.C.S., Chief Surgeon, Ross-Loos Medical Group, Los Angeles. Cloth. $7.50. Pp. 86, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1955.

This is a well-organized treatment of a difficult problem. Various phases of the problem are discussed, from the embryology of the salivary glands to differential diagnosis and treatment of their tumors. There is an extensive bibliography. The discussion of the author's own cases accompanied by photomicrographs is instructive. In a work as comprehensive as this, it is surprising that mumps is not considered in the differential diagnosis and that the postoperative insertion of a filiform bougie into the parotid gland is not mentioned. This book should be helpful to the surgeon faced with a parotid problem, regardless of his experience.

Atlas zur Spurenkunde der Elektrizität. Von Stefan Jellinek, Professor an der Universität und an der technischen Hochschule Wien. Cloth. $17.25. Pp. 78, with 199 illustrations. Springer-Verlag, Mölkerbastei 5, Vienna 1, Austria, 1955.

This book on the physical damage caused by lightning and electrical discharges is distinguished by an extraordinary collection of photographs, many of them in color. The emphasis is on human tissue, and there are some good photomicrographs, but there are also significant pictures of inanimate material. The last seven plates show views of a museum devoted to lightning and electric shock. The author is especially concerned about the question of why any electrical burn is so much more serious than a thermal burn when superficially the two look about equally bad. He finds the explanation in destructive effects on the blood vessel wall; these profoundly impair the circulation and cause more or less extensive gangrene. This book is to be welcomed as a factual contribution in an area where hearsay evidence and superstition have had too much influence. It is attractive in appearance and well indexed. It should interest everyone working in pathology, in industrial surgery, and in legal medicine.

QUERIES AND MINOR NOTES

AIR FILTERS FOR ASTHMATICS

To the Editor:—*I would like information on electric air cleaners and air conditioners for a patient with asthma exacerbated by pollen inhalation. Is there any information regarding their use in persons exposed to pollen all day who would have the advantage of the air cleaner only at night? I also wonder whether an air conditioning unit, which would control the heat and humidity as well as serve as a filter, would be more effective under these circumstances.*

M.D., Wisconsin.

Answer.—The effectiveness of air filters depends largely on the proportion of time that the patient spends in such a filtered atmosphere and in the relative amount of allergy-causing particles that one escapes in such an atmosphere. The amount of pollen that one could avoid in a bedroom during sleeping hours if air filtration were 100% (and it is far from it) would be only a small portion of what the individual would inhale in the daytime. For example, if the 24 hour pollen count were 100, the 8 hour outdoor count at night would be probably around 15 at the most. Of that 15, only about 5 would get indoors without filtration. Thus the problem becomes one of protecting one's self partially against the 5% and ignoring the 95%. Nevertheless, such filtration is frequently effective for the hay fever patient but not however for one who has asthma. The electrostatic type of filter is generally more efficient than the usual window filter, and the latter is more efficient than the majority of air conditioners; however, in spite of the less effective filtration the general comfort from the latter makes it often more desirable.

FRACTURED RIBS

To the Editor:—*What percentage of fractured ribs are demonstrable by x-ray? I believe that many more patients present signs and symptoms clinically of broken ribs than are reported on the initial x-ray.* *M.D., Pennsylvania.*

Answer.—Several factors enter into answering this question properly. If positioning and proper x-ray technique are used, practically all fractures of the osseous portion of the ribs should be demonstrable by x-ray examination. Of course, the cartilaginous portion will not betray evidence of a fracture.

ALBUMIN-GLOBULIN RATIO

To the Editor:—*In a recent set of state board questions, there was the statement "Discuss the A-G Ratio" (albumin-globulin). I take it this has reference to the ratio of albumin and globulin in the blood serum, plasma, or urine in renal disease. Would you discuss this briefly.*

Bruce I. Ryder, M.D., Henry, Ill.

Answer.—The albumin-globulin ratio of the blood is the relation between the number of grams of albumin to the number of grams of globulin per 100 ml. of blood serum. The serum albumin may vary from 3.0 to 4.5 gm. and the total serum globulin from 2.6 to 3.8 gm. per 100 ml. For the urine (mostly of research rather than practical value) it is the ratio of the number of milligrams of albumin per liter to the number of milligrams of globulin. The ratio between the two elements is disturbed when either component alone is distinctly increased or decreased. Thus in kidney diseases with proteinuria, consisting predominantly of albumin (nephrotic syndrome), the albumin fraction of the blood is relatively decreased, so that the albumin-globulin ratio of the serum falls. There is no mathematical relationship between the albumin and globulin in the blood and that appearing in the urine, possibly related to the fact that the smaller molecule of albumin leaks from the kidney more easily than the larger ones of globulin. In the blood in certain severe gastrointestinal disturbances and in idiopathic dysproteinemia, the albumin fraction is relatively low, as well as in severe hepatic dysfunction. In certain reticuloendothelial disturbances such as multiple myeloma and sarcoidosis the globulin fraction may be increased, upsetting the albumin-globulin ratio. In actual practice the term albumin-globulin ratio will probably become of historic interest, as the absolute amounts of albumin and the different types of globulin assume more importance.

CORONARY VASODILATORS IN CORONARY OCCLUSION

To the Editor:—*Please comment on the use of coronary vasodilators, particularly Nitroglycerin and Amylnitrite, in the presence of an acute coronary occlusion with myocardial infarction definitely established by electrocardiogram.*

M.D., Indiana.

Answer.—There has been considerable debate about the use of coronary vasodilators during the acute stage of myocardial infarction. The advocates of such a course argue that the area without blood supply is surrounded by a zone in which the blood supply is diminished by vasoconstriction and that by causing vasodilatation in this zone one might diminish the size of the infarct. The other group argues that since the obstruction is in the main organic, a coronary vasodilator would have no effect on it, and indeed, by reducing the aortic blood pressure and so the head of pressure that profuses the coronary arteries, one would expect that the circulation past the point of narrowing would be reduced, an effect the reverse of that which is desired. Both these viewpoints are reasonable, so that the effect of a vasodilator in a given case of cardiac infarction cannot be safely predicted from theory alone. Experience shows that when coronary vasodilators are given to patients in pain with myocardial infarction, the pain is not relieved in the great majority of instances, and this has led most doctors to believe that these drugs are not of value in this condition. On the other hand there seems to be an occasional case in which pain is relieved. From the practical point of view, one might summarize that there seems to be no objection to trying a vasodilator in a case of acute myocardial infarction. If pain is not relieved one should not persist with medication. If pain is relieved it would seem proper to continue the therapy as long as relief is secured.

ODORIFEROUS URINE

To the Editor:—*An older man's chief complaint at present is the nauseating odor of his urine. A sample of urine was checked and nothing pathologically outstanding was found but the odor, which seems to be a mixture of ammonia gas and other odors. When the patient urinates in quantity the odor sometimes causes him to vomit. He also shows an abnormal dryness of the skin. What would you suggest to eliminate the odor in his urine?*

M. D. Hornedo, M.D., El Paso, Texas.

Answer.—"A nauseating odor of the urine" may be the result of several factors. The most common cause of an ammoniacal odor in an older man is retained urine in the bladder. It would be advisable to catheterize the patient to see whether he has residual urine. It also would be advisable to exclude the possibility of prostatic or urethral obstruction. It is assumed from clinical data given that there is no evidence of pyuria or glycosuria in the course of urinalysis and that it is bacteriologically negative. Any of these factors, if present, may be involved in causing an odor. In some cases, certain types of food, if pre-

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

dominant in the diet, will be the cause of a urinary odor. The severe dryness of the skin, which has been noted, may be due to dehydration because of a tendency to avoid drinking much water. It would be well to exclude the possibility of renal insufficiency, which also may be a factor.

TREATMENT OF ADRENAL CORTICAL HYPOFUNCTION (ADDISON'S DISEASE)

To the Editor:—*What is the accepted treatment of adrenal cortical hypofunction (Addison's disease) of recent onset in a 60-year-old patient? Can the disease be properly controlled by the use of salt and meticorten alone? Is treatment with desoxycorticosterone acetate necessary in all cases?*

M.D., Illinois.

Answer.—In a patient 60 years of age one must consider the response of the circulatory system to adrenal hormones. At present one could use cortisone and hydrocortisone (25 mg.) per day for such a patient. The treatment best designed to regulate mineral balance will depend on the heart size, blood pressure, and circulatory status. Assuming the patient has a small heart and relatively low blood pressure for his age, one would give small doses of salt-retaining hormone, 0.1 to 0.2 mg. of fluorohydrocortisone daily, watching carefully for signs of salt or fluid retention and gain in weight. Patients, in general, do better on treatment with small doses of salt-retaining hormone than with salt, alone. In a patient with hypertension, renal insufficiency, or any evidence of myocardial insufficiency, one would not wish to use any appreciable quantities of salt-retaining hormone for regular maintenance. Under these circumstances one could manipulate the electrolytes by dietary means. In most instances supplementary salt or 3 to 5 gm. of sodium chloride (tablet form) per day may be required. In the case of sudden stress or infection the dose of cortisone will have to be increased and provision made for giving added salt-retaining hormone. The circulatory system must be followed carefully in a patient with adrenal cortical hypofunction over 60 years of age if maximal benefit is to be obtained without undue side-effects. In general it is wise to follow the heart size with a 7 ft. film of the chest, electrocardiogram, blood pressure study, and, if necessary, measurement of venous pressure. The up-curve is generally a most useful guide to excess salt and water retention.

LIFE EXPECTANCY OF HYPERTENSIVE PATIENTS

To the Editor:—*Can an essential hypertensive patient in his 40's or 50's who previously had blood pressures of 165/110 mm. Hg but now is held at 140/86 mm. Hg with antihypertensive medication be assured that he is now normal and that he can expect a normal life expectancy so far as the cardiovascular system is concerned?* *M.D., Nebraska.*

Answer.—Medical opinions differ concerning prolongation of life with continuous use of antihypertensive drug or diet therapy. Most authorities are optimistic. Long-range studies of the natural history of hypertension or of results of sympathectomy have yielded varied conclusions according to constitution of study groups and variations of methods of classification of patients. It is now generally accepted that sympathectomy has prolonged life expectancy. There is now no uniform plan of study to test the general belief that adequate continuous therapy prolongs life as it reduces blood pressure and relieves symptoms. The inquiry describes a slight reduction of average blood pressure from a moderate elevation to a level just above normal in a group of patients. This reduction evidently occurs in a group of relatively benign cases of hypertensions. Twenty years of continuous treatment of this group and of observation of a comparable untreated group under carefully controlled and standardized conditions might be required to demonstrate any statistically significant difference. A study group with a higher initial pressure and a more marked reduction might yield results in a shorter time. Definite reduction of blood pressure can lessen severity of the hypertensive disease process and should increase average life expectancy. Nevertheless, reduction would not warrant advice to an individual patient that his life expectancy would be surely increased; also it would not warrant a conclusion that the patient was no longer hypertensive. It would justify reassurance of the patient that his prognosis is probably improved but with caution that he should certainly continue treatment.

INGROWN TOENAIL

To the Editor:—*Is there a successful treatment for ingrown toenail excising the involved margin and treating the base with a chemical substance?*

John C. Stewart, M.D., Riverton, Wyo.

Answer.—The best treatment for ingrown toenail is removal of the margin of the nail and complete removal of the bed. This would mean an incision into the base of the nail and sometimes requires curetting as well as sharp-knife excision. It is conceivable to destroy the bed with a chemical, but it would certainly set up more irritation than would sharp-knife excision.

COLCHICINE AND LIPEMIA

To the Editor:—*A patient brought me a newspaper article in which the use of colchicine was recommended to reduce blood cholesterol level. Is there any merit in such use of this drug?*

M.D., Florida.

Answer.—There is no known evidence that the use of colchicine will reduce the level of the blood cholesterol. The newspaper article probably had reference to observations made that, when colchicine was given at the same time that cream was ingested, the lipemia that normally develops could to a large extent be prevented.

ENDOMETRIOSIS

To the Editor:—*A 29-year-old patient had a bilateral salpingo-oophorectomy and super vaginal hysterectomy because of a hopeless endometriosis of both ovaries. The surgeon informs her that she is never to allow anyone to give her any estrogenic material. Has it been shown that estrogen is harmful in a condition of this sort? The patient is already showing subjective and objective results of estrogen deficiency.*

Fred L. Ewing, M.D., Meadville, Pa.

Answer.—In spite of the common belief that estrogens are contraindicated in women who have had both ovaries removed for endometriosis, it has been shown that small doses of estrogen may safely be given for the relief of menopausal symptoms in these women. In fact, a few gynecologists are prescribing large doses of estrogen to diminish the size of endometriotic masses and relieve the pain of endometriosis.

ERUCTATION OF HYDROGEN SULFIDE

To the Editor:—*Regarding the question and answer on page 1575 of* The Journal, *Aug. 27, 1955, on eructation of hydrogen sulfide, I believe that the consultant overlooked one cause of "fecal odor" of the breath, namely, gastrocolic fistula. I have found several cases at autopsy.*

John H. Schaefer, M.D.
525 S. Flower
Los Angeles 17.

To the Editor:—*In* The Journal, *Aug. 27, page 1575, under Queries and Minor Notes, there was a reference to the eructation of hydrogen sulfide. In the brief discussion given, no comment was made of the uncommon but important possibility of a gastrocolic or duodenocolic fistula producing all the symptoms that the patient presented. Certainly, further gastrointestinal x-ray examinations should be done.*

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OCCUPATIONAL HEALTH PROBLEMS IN AN INDUSTRIAL SOCIETY

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When the medical student of today begins to think about his future professional career, he is often confused by the multiplicity of choices for his life work. Until recently, little or no importance has been given to a relatively new, very broad, and challenging field. It is my purpose to explore, and to some extent define, the present developments in a new specialty and perhaps a new era in public health in a field called occupational health. Industrial medicine has grown up empirically to serve a need. Industry had first to provide medical care for its workers who received traumatic injuries on the job. This expanded subsequently into the screening of employees both before hiring and during employment to explore their physical fitness and to provide for their proper placement. During the earlier period accident and compensation insurance developed as a means of financing the treatment and care of those injured during and as a result of employment. During the last two decades a considerable labor market has been found for persons whose capacity for work is limited, by one or another handicap or partial disability, to certain types of activity or occupation. The proper choice and evaluation of the type of work and the labor capacity of the individual is a difficult and complex medical problem and has given rise to extensive testing programs that the doctor must carry out or participate in. Recently, and mainly as a result of the demonstrations of new techniques utilized by the armed forces and veterans' facilities hospitals, the rehabilitation of potential workers has become a part of the over-all armamentarium of the industrial doctor and his associates.

While all of this has been developing in the industrial physician's orbit and practice, he often has had relatively little contact with or little interest in what actually goes on in the plant, and he is not often brought into the planning stages of new ventures by management. Recent experiences by both management and doctors have shown that this is wasteful and that a great deal can be gained by breaking down the barriers and promoting free communication among the three-party group of management, labor, and the doctor in these areas. The industrial physician then may be said to practice medicine in industry. He must be aware of the special problems of management as well as the peculiar hazards to which the worker is exposed, their prevention, and treatment of the injuries that they may produce. He has many other responsibilities too. This is a broad and fascinating field of practice of great importance to efficient management of industry.

NEW ROLE OF PUBLIC HEALTH PHYSICIAN

There is another type of practice that requires a little different type of training and utilizes more of the public health and preventive medicine techniques while dealing with the effects of hazardous substances. This field might be called occupational health. In the past, the doctor in a public health practice has had to deal mainly with large numbers of the population ill with some epidemic and infectious disease. With some oversimplification one may say that, in his civic role, he has assembled the most recent information on the identification, treatment, and modes of spread of the several epidemic diseases and has informed the medical profession and the public as to what is the best way of combating or preventing these diseases. As a result of this team play, we have safe, potable water and milk and efficient and safe sewage disposal systems; we have had vaccination programs and screening surveys. Many diseases have been eliminated as a serious threat by these and other techniques familiar to all. During and since the war we have had an era of development of the biological attack on disease, i. e., the penicillins, the "mycins" and "cidins," and the specific chemical substances like the sulfonamides, the antimalarial agents, and many others. As a result, we are beginning to see a change in the type of medical practice and likewise in the type of patient in the office, clinic, and hospital. No longer do we have a high mortality from pneumonia and meningitis. The mastoid sinus operation is rarely done nowadays. The "frozen pelvis" and urethral stricture and the gummas of the recent past are rarities, even though the venereal disease problem is still with us. Even the "great white plague" and probably poliomyelitis seem to be on the run. This does not mean that the public health physician will need to be dispensed with. His methods and his police power must be kept intact to safeguard people on every hand.

Dean, Medical School, University of California.

Read before the 15th Annual Congress on Industrial Health, Washington, D. C., Jan. 25, 1955.

dedicated workers—an engineer and gadgeteer, a physicist, an electron microscopist, a biochemist, a pathologist, and others.

This is a frustrating type of research unless it has the rest of the approach to go with it. A new industrial process uses a new compound or substance with a known chemical formula. A few rather extensive experiments are done by intramuscular and intravenous injection and by feeding experiments to determine the basic toxicity and the site of damage and the symptoms of dysfunction. Then, using a relatively small number of animals in each group, a 10-day trial is made over a wide range of dosage, with feeding and inhalation exposure. Large enough concentrations are used to obtain some lethal effects. After these animals are killed and examined, the dosage is scaled down and a 30-day run is made, the levels being set to achieve some lethal effect. These animals are then killed and studied. About six months has elapsed, and a great deal is now known about the material. The long-term (approximately one year) minimal concentration levels are now tried with the range set to show just an effect with some of the animals and to show no demonstrable difference from the controls with other animals. At the end of the program the animals are killed and examined as before. If the design was good and the expected survivals occurred as in the controls, the results are comparable to similar experimental runs in the same species with other materials. For all this trouble and expense, one has only a few points on a curve. Yet, they are of relative value within the species, and, when the art progresses sufficiently, we may have a ratio to extrapolate with some accuracy from animal to man. At present there is considerable discussion as to the validity of this extrapolation, and often, in setting the value for man, a factor of safety is incorporated. The value for the animal is frequently reduced by a factor of 10. The "no exposure" policy developed for radiation hazard by the University of Chicago metallurgic laboratory group under Robert Stone during the Manhattan District era is one that we should all like to see applied, but it is unlikely that such an ideal will be reached in most industries.

It may be said that the experimenters get little return for their long effort unless they are permitted to explore the interesting side-effects that may be found during these routine daily chores. There must be enough of these excursions provided in the budget to keep good men in the field. Otherwise such work will not be done. Aside from the great cost of these long experiments, the routine character of the experiment has not attracted scientists into this field, and thus, not much of this type of work has been done. Liquids and gases are special problems, and, while they are easier to use in the chamber, they are often difficult to standardize biologically in other ways.

OCCUPATIONAL HEALTH PROBLEMS IN METROPOLITAN CENTERS

There is another aspect of occupational health that must be considered here. Up to now we have been concerned with the workman in industry, and the exposure has been that of the eight-hour day. Most of our large industrial areas are developed in and around a large metropolitan center. Many of these cities have a meteorologic situation conducive during part of the year to the production of what has recently been termed as "smog." This is a combination of fog and other things presumably arising from smoke, industrial effluents, engine exhausts, and other sources. This mixture is formed under an inversion layer at a time when there is little or no wind and turbulence. Visible moisture or fog may not be evident. That this may be hazardous to populations has been demonstrated by reported episodes in London, England, and Donora, Pa., and elsewhere. Communities have become aware of their potential danger and have set up control facilities and policing agencies in the attempt to eliminate this hazard. Some of the toxic elements have been identified (sulfur dioxide, carbon monoxide); others are presumably hazardous (hydrocarbons plus oxides of nitrogen in bright sunlight may form toxic amounts of ozone). Many others are unidentified. The situation probably varies greatly from city to city and from time to time throughout the year.

Reliable standards for safe levels and dangerous levels, which might be applicable for safeguarding the population under such conditions, do not exist for even the known toxic materials. Although published tables give safe concentrations of some of these materials, most values are not backed by more than by what might be termed empirical assumptions. Furthermore, values given as safe for an eight-hour exposure are not necessarily applicable for longer periods. The population is not made up of "normal workers" but has a variety of ages and people in varying conditions of health. Another disturbing feature of the "smog" problem is that the material is not confined to the contents of a building as it is in industry but may be slowly drifting about in a large mass at near ground level and may be anywhere at a given time. This makes detection, measurement, and public safety a difficult situation. Prevention is, of course, the key to the situation, but what may be safe during a windy day may not be safe during a "smog" cycle. To close up all sources of air pollution is at present an impossibility, particularly since the known sources are so numerous and so widespread. It would appear that a great deal of biological experimental work in setting safe standards will be required on the known elements and other hazardous elements of "smog" as soon as they are identified.

Many communities do not have the proper legal machinery to deal simply with the evacuation problem if it would become necessary to remove people from a dangerous situation. Most of our public health laws pertain to procedures for preventing people from leaving areas (quarantine). Most local and state disaster acts have the mechanisms required to evacuate homes and feed people and pay for these costs, but in some jurisdictions the procedure is awkward and needs clarification.

Radioactive Contamination.—While radioactive contamination has been a part of the deliberations of another section of this 15th Annual Congress on Industrial Health, for the sake of completeness one must mention safeguarding the public from the radioactive materials that are used in hospitals and industry. The amount used has gradually increased to the point where they are no longer a negligible factor in our sewage and therefore have a potential hazard to our food and water supply. The great concentrating power of the roots of plants must not be overlooked. Thus, what may be considered a safe, low-level radioactive contamination with long-life material may be an insidious hazard if it becomes available to the plant and thus our food cycle. Adequate controls and their enforcement may eliminate this hazard except in the case of an atomic war. In such an eventuality, the over-all, long-time, insidious hazard to large numbers of our population could readily reach fantastic proportions. Many of the problems that atomic warfare would create are capable of solution by adaptation of the same sound principles of good public health practice that have been used to safeguard the public against the spread of disease. However, some special procedures will have to be devised for safeguarding our people. While many seem complex and impractical now, if they are required for survival, we will learn to use them. The race has always done whatever was necessary for survival. It may mean a return to a very primitive existence for a period. The cost of avoiding contamination in everyday living might require all of our energy and time available beyond that required for basic food and shelter.

Eliminating Hazards.—In order to function effectively, the physician in occupational health has to be familiar with the problems of the industrialist—why he does things a certain way, what things affect his costs. Most industrial procedures are composed of a series of simple steps multiplied many times. The elimination of hazards must be developed in the same way, through simple steps multiplied many times, if possible, without delaying or otherwise increasing the cost of the operation. The workman must understand the reasons for complying with the safeguards. This is an educational procedure and also a problem in communication. It often starts with management passing down the information through the foreman and the steward to the workman. The union has to be convinced. Great patience and tact are required. Some knowledge of engineering and a sense of humor are of great value to the physician.

NEED FOR MORE MEDICAL SCIENTISTS

From a review of the problems confronting the doctor in the occupational health field, it would appear that there is a great deal to be done in the way of mutual education and spread of technical knowledge among the agricultural, meteorologic, medical, engineering, biophysical, chemical, industrial labor, and management groups. There is almost a new frontier here daily in considering safe practices and safe levels of exposure for new developments. From the medical-biological standpoint, even though there are many familiar elements, a very different approach is required than what is currently called industrial medicine. While there are a few medical and other scientists interested in this field, the magnitude of the problems confronting them are so great that every effort should be made to train more men in this field. There has been and still is a great scarcity of research in solving serious basic problems confronting both industry and the community. Such research is urgently needed and should be done on an appropriate scale to achieve the necessary data within a reasonable time. There are essentially five areas in the United States that have acute industrial and community problems (smog) peculiar to themselves. These are the metropolitan areas of (1) New York City and New Jersey, (2) Pittsburgh, (3) Detroit and Chicago, (4) Los Angeles, and (5) San Francisco and Seattle. In each of these locations there should be built and subsidized a university-connected research laboratory. Training of personnel should be a salient feature of this program. Each should be the focal point for its area. While state and local support should play some part, the product data and trained personnel from these laboratories are useful to the nation as a whole and thus might be subsidized by a federal grant-in-aid procedure. They should be integrated with a university program so that training and consultation from other experts may be available. Agriculture must not be overlooked, both because of the rapid development of pesticides and weed killers for large-scale use and because many vegetables and plants are equally sensitive to industrial and other air pollutants.

It is my belief that the subject is both broad and important enough to warrant setting up a joint commission at the national level to consider both technical problems and social consequences. Such a commission, made up of representatives of labor, management, government, and the affected professional groups, could define the basic problem, determine areas of needed study and investigation, and ultimately assign responsibility for continuing supervision and implementation. I hope real consideration will be given to the best ways to proceed in order to reach common understanding and mutual helpfulness. And, to the adventurous medical student who would like to deal with mass problems rather than those of the individual, and who perhaps has some mechanical bent, the broad field of occupational health should offer a great challenge in our industrial age.

Hormonal Treatment of Allergy.—Cortisone and hydrocortisone are useful therapeutic agents in selected cases of allergic and related disorders. . . . These steroids possess potentially dangerous side effects. . . . Long-term maintenance therapy has proved more dangerous than short-term treatment. It has become fashionable to condemn the use of cortisone and hydrocortisone, but it may be necessary to employ these steroids if other therapy proves unavailing. . . . Each patient with severe allergic and related disease [should] be studied with care before being placed upon corticosteroid therapy. Such treatment is often far easier to initiate than to terminate. If cortisone and hydrocortisone are to be used, the patient should also be taken into the physician's confidence and should be made aware of the drawbacks as well as the advantages of steroid therapy. If long-term maintenance therapy is necessary, the doctor and patient must cooperate throughout treatment. The patient should be seen at frequent intervals and examined thoroughly. He must likewise be instructed to report all deviations from normal. . . . All possible means of protecting the patient from undesirable side effects must be explored. The steroid chemists are searching for effective and safer compounds. New compounds are rapidly becoming available, but only time and careful clinical evaluation of each will determine its true worth. . . . The search for the modes of action of these adrenocortical steroids must be continued and encouraged. Success in this field of investigation may ultimately lead to safer use of these agents, and perhaps will even bring about a better understanding of allergic and related diseases.—W. S. Burrage, M.D., and others, The Use of Cortisone and Hydrocortisone in Allergy, *Annals of Internal Medicine*, November, 1955.

INFLUENCE OF ANESTHESIA ON INFANT MORTALITY RATE IN CESAREAN SECTIONS

Peere C. Lund, M.D., Johnstown, Pa.

It is generally agreed that the choice of anesthesia in cesarean sections is of particular importance because there are at least two lives to be considered, and unfortunately the anesthetic that appears ideal for the mother may actually be unsatisfactory or even dangerous for the fetus. The numerous articles in the current medical literature dealing with this subject indicate that there is a wide divergence of opinion regarding the choice of anesthesia for this procedure.[1] I believe that many of the positive opinions expressed are based on the maternal mortality and morbidity rates without a thorough consideration of the effect upon the fetus. A review of the current literature dealing with infant mortality rates in cesarean sections likewise reveals a marked discrepancy.[2] This is in a large measure due to the use of variable standards. Some authors, for example, when expressing fetal mortality rates consider only term infants (weighing 2,500 gm. and over), while others consider only infants weighing over 1,000 gm. The rather common use of the "estimated period of gestation" also causes confusion and never can be considered accurate. In this series the standard used is fetal weight, and any infant who did not leave the hospital alive, regardless of how long after delivery, was considered a mortality.

There are numerous factors that may contribute to fetal mortality in cesarean section.[3] The commonest perinatal causes of infant mortality are: (1) anoxia due to such factors as placenta previa or abruptio, prolapse of the cord, or prolonged labor; (2) prematurity; (3) malformations; (4) erythroblastosis fetalis; (5) trauma or infections during delivery; (6) abnormal pulmonary function usually due to hyaline membrane disease or intra-alveolar hemorrhage; (7) various other conditions such as maternal diabetes, syphilis, or toxemia; (8) anesthetic agents, directly due to central depressant action on the fetus or secondarily due to maternal hypotension; and (9) various unknown maternal or fetal causes. The prime factor in most instances, however, is the maternal complication for which the operation is performed. Second in significance is the period of gestation or the weight of the fetus. The immediate management and resuscitation of the infant after delivery also plays a vital role in survival rates. To estimate accurately the role played by anesthesia all other factors that influence infant mortality rates must be eliminated or excluded. Similarly to estimate the relative influence of various types of anesthesia upon infant mortality rates similar conditions must prevail. Obstetricians frequently refer to a rather vague term the "intrinsic fetal mortality rate in cesarean sections."[4] I believe from this study that a large percentage of this so-called intrinsic mortality rate is actually due to the effects of anesthesia, the notable exception in some cases being death due to intracranial hemorrhage.

The premedication is varied with the type of anesthesia employed and the condition of the fetus. In uncomplicated cases before conduction anesthesia, secobarbital (Seconal), 1.5 grains (0.1 gm.), is administered two hours preoperatively and meperidine (Demerol) hydrochloride, 50 to 100 mg., with scopolamine, 1/150 to 1/200 grain (0.4 to 0.3 mg.), one hour preoperatively; before balanced anesthesia or administration of cyclopropane alone, scopolamine, 1/150 grain (0.4 mg.), is given one hour preoperatively. In cases in which fetal anoxia is known to be present only scopolamine is given.

TYPES OF ANESTHESIA

All the cesarean sections in this series were performed with one of the following three types of anesthesia: lumbar analgesia (spinal anesthesia), balanced anesthesia, or epidural anesthesia. Similar techniques were used in each instance to keep the number of variable factors at a minimum.

Lumbar Analgesia.—Hypobaric tetracaine (Pontocaine) hydrochloride solution, 0.1%, was utilized in each instance. The patient is placed on her side without a pillow. The operating table is inclined so that the patient's head is just below the horizontal. From 9 to 11 cc. of the solution is injected slowly. No solution is injected during labor pains. At the completion of the injection the patient is quickly turned on her back and the table placed in a slight Trendelenburg position. The onset of anesthesia is rapid (4 to 5 minutes) and extends over a 60 to 90 minute period. Following delivery small amounts of thiamylal (Surital) sodium are administered if somnolence is desirable. Lumbar analgesia was employed in 423 cases in this series.

Epidural Anesthesia.—Epidural anesthesia was induced with 20 to 25 cc. of 2% hexylcaine (Cyclaine) hydrochloride or lidocaine (Xylocaine) hydrochloride solution. The patient is placed in the lateral position with a pillow under her head on an operating table in a slightly reversed Trendelenburg position. The epidural needle is introduced in the lower lumbar region and advanced until it impinges on the ligamentum flavum. The

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From the Department of Anesthesiology, Conemaugh Valley Memorial Hospital.

Read before the Section on Anesthesiology at the 104th Annual Meeting of the *American Medical Association, Atlantic City, June 10, 1955.*

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[3] Potter, E. L.: The Trend of Changes in Causes of Perinatal Mortality, J. A. M. A. **156:** 1471-1474 (Dec. 18) 1954.

[4] Taylor, H. W., and Ward, E. J.: The Intrinsic Fetal Mortality of Cesarean Section, Am. J. Obst. & Gynec. **65:** 1276-1283 (June) 1953.

stilet is then removed, and a 5 cc. syringe previously filled with distilled water is connected to the needle. The epidural needle is then advanced slowly with the left hand while firm pressure is applied to the plunger of the syringe with the right hand. The sudden advance of the plunger of the syringe indicates that the needle has entered the epidural space. The sudden complaint by the patient of a burning pain, caused by the distilled water, is further evidence that the epidural space has been entered. Five cubic centimeters of the desired anesthetic solution is then rapidly administered to stop the burning pain. After careful aspiration in all planes to make certain that the needle has not punctured the dura an additional 15 to 20 cc. of the anesthetic solution is slowly injected. The patient is then turned on her back, but the table remains in the reverse Trendelenburg position 5 to 10 minutes before being positioned according to the desires of the obstetrician. Following delivery small amounts of thiamylal sodium are administered if somnolence is desired. Epidural anesthesia was employed in 45 cases in this series.

TABLE 1.—*Indications for Cesarean Section, by Type of Anesthesia*

Indications	Total No.	Anesthesia		
		Lumbar	Balanced *	Epidural
Cephalopelvic disproportion	195	114	69	12
Previous cesarean section	216	140	54	22
Uterine inertia or dystocia	61	46	13	2
Placenta abruptio or previa	90	46	42	2
Elderly primipara	27	16	9	2
Eclampsia or preeclampsia	23	21	2	..
Chronic pyelonephritis	2	1	..	1
Ruptured uterus	4	2	2	..
Tumors or congenital defects	7	4	2	1
Diseases of hip or spine	6	4	2	..
Heart disease (decompensation)	16	13	2	1
Fetal prolapsed cord	2	1	1	..
Rh negative (multipara)	1	..	1	..
Abdominal pregnancy	1	..	1	..
Syphilis or diabetes mellitus	5	3	2	..
Vaginal plastic repair	15	12	1	2
Total	671	423	203	45

* Balanced anesthesia used was induced with cyclopropane and thiamylal (Surital) sodium.

Balanced Anesthesia.—When all is in readiness for the abdominal skin preparation anesthesia is induced with 5 cc. (100 mg.) of thiamylal sodium and cyclopropane is then administered by the closed circle absorption technique. Sufficient anesthesia is given to prevent muscular movement until after delivery of the baby. When an endotracheal tube is passed, 20 to 30 mg. of succinylcholine chloride is utilized to induce maximum relaxation. In these cases controlled respirations are required to rapidly attain a sufficient depth of anesthesia for surgery. The skin incision is made as soon as possible after the induction with thiamylal sodium, and the baby is rapidly extracted. This method of anesthesia was employed in 203 cases.

RESULTS OF STUDY

The 671 cesarean sections resulted in the delivery of 676 infants, including one set of triplets and three pair of twins. There were 68 fetal deaths in 63 cesarean sections, which is a gross fetal mortality rate of 10% occurring in 9.4% of the sections. The corrected fetal mortality rate that was obtained by eliminating the stillbirths and the severe congenital deformities was 5.6%. One maternal death occurred in this series, but the baby survived. A 26-year-old multipara while undergoing a repeat cesarean section developed cardiac arrest secondary to a pulmonary embolism and died approximately six hours postoperatively of cerebral anoxia. The gross mortality rate in this series appears rather high; however, a more accurate picture is reflected by the corrected figure. Table 1 lists the indications and types of anesthesia used for the cesarean sections.

Causes of Fetal Mortality.—Table 2 summarizes the gross causes of fetal mortality in this series. This series was divided into two groups depending on the presence or absence of known maternal complications that might affect fetal mortality. The advent of labor or the presence of prematurity per se were not considered as factors in this division because the relative survival of the premature infant was considered to be significant.

TABLE 2.—*Causes of Fetal Mortality*

Pathological Conditions	Total No.	Anesthesia		
		Lumbar	Balanced	Epidural
Stillbirth	28	11	15	2
Prematurity	27	17	10	..
Hyaline membrane disease with atelectasis	5	2	2	1
Congenital deformities	5	3	2	..
Erythroblastosis fetalis	1	1	..	..
Intraventricular hemorrhage	1	1	..	..
Diabetes mellitus	1	1	..	..
Total no. fetal deaths	68	36	29	3
No. sections with fetal mortality	63	35	25	3
Gross mortality rate, %	10.1	8.5	14.3	6.7
Corrected mortality rate,* %	5.3	4.5	5.8	2.3

* Excluding stillbirths and congenital deformities.

Uncomplicated Cesarean Sections.—There were 450 cesarean sections performed in which there were no known maternal complications that might cause fetal mortality. Indications for surgery and number of cases were: cephalopelvic disproportion, 193 (113 with lumbar analgesia, 68 with balanced anesthesia, and 12 with epidural); previous cesarean section, 215 (139 with lumbar analgesia, 54 with balanced anesthesia, and 22 with epidural); elderly primipara, 27 (16 with lumbar analgesia, 9 with balanced anesthesia, and 2 with epidural); and vaginal plastic repair, 15 (12 with lumbar analgesia, one with balanced anesthesia, and 2 with epidural). Thus, of the total 450 cesarean sections performed, 280 were done with lumbar analgesia, 132 with balanced anesthesia, and 38 with epidural. A statistical analysis of the fetal deaths that occurred in these cases shows that the indications for cesarean sections and the type of anesthesia employed in the cases in which perinatal mortality occurred are: cephalopelvic disproportion, six (four with lumbar analgesia and two with balanced anesthesia); previous cesarean section, seven (five with lumbar analgesia and two with balanced anesthesia); and elderly primipara, one (with balanced anesthesia). In this group there were 14 fetal deaths, with 9 occurring following lumbar analgesia and 5 after balanced anesthesia. This results in a gross fetal mortality rate of 3.1% (3.2% with lumbar analgesia, 3.8% with balanced anesthesia, and none with epidural anesthesia). The over-all corrected mortality rate, excluding stillbirths and severe congenital deformities, is 1.8% (1.8% with lumbar analgesia, 2.3% with balanced anesthesia, and none with epidural anesthesia). Thus the corrected mortality rate with conduction anesthesia is only 1.6%.

The cause and number of cases of neonatal death in uncomplicated cesarean sections in which lumbar analgesia was used were: stillbirth, one; hydrocephalus, two; erythroblastosis, one (in an infant who lived three days); prematurity, three; congenital heart disease, one; and atelectasis, one. The weight and life span of each of the three premature infants were: (1) 1,167 gm. (2 lb. 9 oz.) and lived five hours; (2) 1,667 gm. (3 lb. 10 oz.) and lived six hours; and (3) 2,196 gm. (4 lb. 13 oz.) and lived one day before dying of an intraventricular hemorrhage. In this group there were two term infants, one weighing 3,345 gm. (7 lb. 6 oz.) who lived four days before dying of an intraventricular hemorrhage and congenital heart disease. The other infant, who weighed 3,770 gm. (8 lb. 5 oz.), was subjected to a 28 hour labor before cesarean section was performed. Respirations in this infant were depressed, and slight cyanosis was present when the infant was delivered. Much thick, tenacious secretion was aspirated from the oropharynx and trachea. This infant never achieved a satisfactory respiratory exchange and died on the second day of hyaline membrane disease with atelectasis. Anesthesia appeared to play a role in the death of one of the premature infants and the term baby who died of atelectasis but played no role in the causation of the stillbirth.

TABLE 3.—*Complicated Cesarean Sections, by Type of Anesthesia*

Indications	Total No.	Anesthesia: Lumbar	Balanced	Epidural
Placenta abruptio or previa........	90	46	42	2
Uterine inertia, cervical dystocia...	62	46	14	2
Eclampsia or preeclampsia..........	25	23	2	..
Chronic pyelonephritis...............	2	1	..	1
Ruptured uterus.......................	4	2	2	..
Tumors or congenital defects......	7	4	2	1
Diseases of hip or spine............	6	4	2	..
Heart disease (decompensation)....	16	13	2	1
Fetal prolapsed cord.................	2	1	1	..
Rh negative (multipara)............	1	..	1	..
Abdominal pregnancy...............	1	..	1	..
Syphilis or diabetes mellitus........	5	3	2	..
Total............................	221	143	71	7

The cause and number of cases of perinatal mortality in uncomplicated cesarean sections in which balanced anesthesia was used were: stillbirth, one; congenital deformities, one; prematurity, two; and atelectasis, one. The weight and life span of the two infants were: (1) 1,775 gm. (4 lb.) and lived 15 hours, during which time respirations were delayed and good color developed following resuscitation, but death occurred without satisfactory respiratory activity having been established; and (2) 2,308 gm. (5 lb. 1 oz.) and lived 5 hours, during which time marked depression of respirations and cyanosis was present after delivery, adequate respiratory exchange was not established, and death finally occurred due to atelectasis. A full-term infant weighing 2,665 gm. (5 lb. 14 oz.) died on the fifth day from bronchopneumonia and atelectasis. Respiratory activity was depressed, and slight cyanosis was present after delivery that responded quickly to resuscitation. Anesthesia may well have played a role in the death of the above premature and full-term infants. The stillborn infant in this group weighed 1,942 gm. (4 lb. 10 oz.). Cesarean section was indicated because the mother was 41 years old. Labor had been present approximately four hours, and the membranes were ruptured. There was no apparent cause for the stillbirth, and thus anesthesia may well have played a role in this death.

Complicated Cesarean Sections.—Table 3 summarizes the 221 cesarean sections in which there were known maternal complications that might affect fetal mortality.

Complicated Cesarean Sections with Fetal Mortality: Table 4 summarizes the fetal mortality that occurred in the 221 complicated cesarean sections in this series. A set of triplets and two pair of twins are included in this group. The causes and number of cases of perinatal mortality in complicated cesarean sections in patients anesthetized with lumbar analgesia were: stillbirth, 10; prematurity with or without other factors, 15; diabetes, one; and atelectasis, one. Analysis of the cause of death of the 15 premature infants shows that death was thought to be due to prematurity in the 6 infants who weighed under 1,500 gm. (3 lb. 5 oz.). Of the remaining nine infants, one weighed 1,531 gm. (3 lb. 6 oz.), lived three days after cesarean section due to face presentation and uterine inertia in the mother, and died due to prematurity and hemorrhage from the gastrointestinal tract; one weighed 1,601 gm. (3 lb. 12 oz.), lived eight hours, showed depressed respiratory exchange with slight cyanosis that was present at birth, lacked good color despite the fact that there was apparently adequate tidal exchange, and died due to cerebral anoxia secondary to intra-alveolar amniotic fluid that had been aspirated before delivery, as determined at autopsy; one weighed 1,658 gm. (3 lb. 14 oz.), lived four days, was delivered by cesarean section because of eclampsia and placenta previa, and showed marked respiratory depression and mild cyanosis on delivery, which improved rapidly following resuscitation; and one weighed 1,658 gm. (3 lb. 14 oz.), lived eight hours, showed depression of respiratory activity and cyanosis on delivery, had much mucus

TABLE 4.—*Complicated Cesarean Sections with Fetal Mortality, by Type of Anesthesia*

Indications	Total No.	Anesthesia: Lumbar	Balanced	Epidural
Placenta abruptio or previa *......	31	12	17	2
Eclampsia or preeclampsia..........	7	7	..	..
Uterine inertia, cervical dystocia....	3	2	1	..
Chronic pyelonephritis...............	1	..	..	1
Ruptured uterus.......................	2	1	1	..
Tumors or congenital defects......	2	2	..	..
Rheumatic heart disease............	1	1	..	..
Abdominal pregnancy...............	1	..	1	..
Diabetes mellitus.....................	1	1	..	..
Total no. sections...............	49	26	20	3
Total no. fetal deaths..........	54	27	24	3
Gross fetal mortality rate, %.....	24.4	18.8	33.8	42.8
Corrected fetal mortality rate, %..	13.4	12.7	16.0	20.0

* Including 1 set of triplets and 3 pair of twins.

that was aspirated from the trachea and oropharynx, and showed a quick improvement in color but the respirations remained shallow. The other five weighed 1,573 gm. (3 lb. 11 oz.), 1,658 gm. (3 lb. 14 oz.), 1,875 gm. (4 lb. 2 oz.), 1,956 gm. (4 lb. 5 oz.), and 2,013 gm. (4 lb. 7 oz.). Each of these five infants was delivered by cesarean section because of the presence of placenta previa, and each lived less than 12 hours. Anesthesia cannot be excluded as a contributory factor in the deaths in the last six cases but certainly played no part in the first three cases. There were two full-term infants in this group. The first weighed 3,118 gm. (6 lb. 14 oz.) but lived only five hours. The mother was a diabetic, and, since no other cause was found, death was considered as due to diabetes. The second infant weighed 3,090 gm. (6 lb. 13 oz.) and lived 24 hours. Section was performed because of placenta previa. Respiratory activity was weak upon delivery, but the color was good and a large amount of secretion was aspirated from the air passages. Cyanosis occurred several hours after the infant was placed in an incubator. Anesthesia cannot be excluded as a contributory factor in the second case but we believe that resuscitation may have been inadequate. Anesthesia played no role in the death of the first infant.

The causes of the stillbirths in this group are eclampsia or severe preeclampsia present in six cases and placenta abruptio necessitating cesarean sections in the other four. No heart sounds were heard preoperatively in any of the above. Anesthesia was not a contributory factor in any of these.

The cause and number of cases of perinatal mortality in complicated cases of cesarean sections in patients anesthetized with epidural anesthesia were stillbirth, two; and prematurity, one. The premature infant weighed 1,985 gm. (4 lb. 4 oz.) and died on the second day of atelectasis secondary to hyaline membrane disease. Section was performed because of hypertension and chronic pyelonephritis. The two stillbirths were due to complete placenta abruptio; in neither case were fetal heart sounds heard preoperatively. Thus anesthesia was not a contributory factor to the death of any of the infants in this group.

The causes and number of cases of perinatal mortality in complicated cesarean sections in which balanced anesthesia was used were stillbirth, 14; congenital deformities, one; and prematurity, 9. The weight and life span of the premature infants and the indication for cesarean section were: one weighed 1,531 gm. (3 lb. 6 oz.), lived 7 hours, showed delayed and depressed respiratory activity, never achieved adequate pulmonary ventilation, and was delivered by cesarean section because of placenta previa; one weighed 1,956 gm. (4 lb. 5 oz.), lived one day, had cyanosis on delivery secondary to depressed respiratory activity, had a poor cry, and was delivered by cesarean section because of placenta previa; one weighed 2,126 gm. (4 lb. 11 oz.), lived two days, had a long delay in obtaining adequate respiratory exchange, had cyanosis, had poor cry, and was delivered by cesarean section because of uterine inertia and mild preeclampsia; one weighed 1,956 gm. (4 lb. 5 oz.), lived 14 hours, had cyanosis and depressed respiratory activity, had weak cry, and was delivered by cesarean section because of placenta previa; three sets of triplets, each weighing 907 gm. (2 lb.) and living less than 3 hours, were delivered by cesarean section because of placenta previa; and one set of twins, each weighing 1,134 gm. (2 lb. 8 oz.) and living 3 hours, and one set of twins, each weighing 936 gm. (2 lb. 1 oz.) and living 7 hours, were delivered by cesarean section because of placenta previa. The triplets and twins died because of gross immaturity. In the other four infants, however, anesthesia cannot be ruled out as a contributory factor.

The causes of the 14 stillbirths in 13 complicated cesarean sections in patients anesthetized with balanced anesthesia were: one followed a transverse presentation with prolapse of the cord and absence of fetal heart sounds preoperatively; 10 (9 sections) were due to complete placenta abruptio, in none of which fetal heart sounds were present preoperatively; and in two cases, however, following placenta previa fetal heart sounds were heard preoperatively. In only the remaining two cases could anesthesia be considered as a possible contributory factor in the infant mortality.

Gross Fetal Mortality Rate, by Weight.—Table 5 summarizes the gross perinatal mortality by weight of

TABLE 5.—*Fetal Mortality Rate, by Weight and Type of Anesthesia*

Weight	Total No. Infants	Anesthesia						Difference, %
		Conduction			Balanced			
		No.	Died	%	No.	Died	%	
Gross Rate								
Under 1,000 gm. (under 2 lb. 3 oz.)	6	3	3	100	3	3	100	0
1,000-1,500 gm. (2 lb. 3 oz.-3 lb. 5 oz.)	9	6	5	83	3	3	100	17
1,500-2,000 gm. (3 lb. 5 oz.-4 lb. 6 oz.)	34	24	13	54	10	8	80	26
2,000-2,500 gm. (4 lb. 6 oz.-5 lb. 8 oz.)	47	28	3	10.7	19	7	36.8	26.1
Over 2,500 gm. (over 5 lb. 8 oz.)	580	408	15	3.7	172	8	4.7	1
Total	676	469	39	8.3	207	29	14	5.7
Corrected Rate								
Under 1,000 gm. (under 2 lb. 3 oz.)	5	2	2	100	3	3	100	0
1,000-1,500 gm. (2 lb. 3 oz.-3 lb. 5 oz.)	6	5	4	80	1	1	100	20
1,500-2,000 gm. (3 lb. 5 oz.-4 lb. 6 oz.)	27	21	10	47.6	6	4	66.6	17
2,000-2,500 gm. (4 lb. 6 oz.-5 lb. 8 oz.)	40	27	2	7.4	13	1	7.7	0.3
Over 2,500 gm. (over 5 lb. 8 oz.)	568	399	6	1.5	169	5	3	1.5
Total	646	454	24	5.3	192	14	7.3	2

the 676 infants delivered in this series. This table indicates that anesthesia has a marked influence on the gross fetal mortality rate of premature infants delivered by cesarean section but little influence on that of the full-term infants.

Corrected Fetal Mortality Rate, by Weight.—Table 5 also summarizes the corrected fetal mortality rate obtained by eliminating the stillborn infants and those infants born with severe congenital deformities. None of the infants weighing less than 1,000 gm. (2 lb. 3 oz.) survived, regardless of the type of anesthesia utilized. This table indicates that anesthesia also has a statistically significant influence on the corrected fetal mortality rate (by weight), particularly in the 1,000 to 2,000 gm. (2 lb. 3 oz. to 4 lb. 6 oz.) weight group. The infants in this series have all been delivered by cesarean section under similar conditions and circumstances. This being the case it is believed that the difference in the corrected fetal mortality rates obtained under conduction and balanced anesthesia is due to the influence of anesthesia.

Infant Resuscitation.—The responsibility for resuscitation in these cases belongs to the anesthesiologist.[5] The actual resuscitative procedures required in a particular case depend of course on the condition of the infant at the time of delivery. In each instance, however, it is imperative that the following principles be applied: (1) immediate aspiration of all secretions in the air passages, (2) maintenance of body temperature, (3) gentle and minimum handling, and (4) administration of oxygen in such a manner that it can be utilized. In addition the stomach contents should be aspirated.

Stage of Depression: Infants born in a stage of depression generally require only tracheal aspiration, insertion of an oropharyngeal airway, and oxygen administration by intermittent positive pressure until spontaneous respiratory activity has been established.

Stage of Spasticity: Infants born in a stage of spasticity are treated as above, but in addition an endotracheal tube is left in position following aspiration of the trachea and oxygen is administered by intermittent positive pressure through this tube until spontaneous respirations have been initiated.

Stage of Flaccidity: Infants born in a stage of flaccidity are treated in the same manner as the second stage, but an effort should be made to aspirate the main bronchi as well as the trachea. An infant bronchoscope, 3 or 3.5 mm., is a valuable adjunct for this procedure. The administration of oxygen by intermittent positive pressure following adequate aspiration of the tracheobronchial tree maintains oxygenation of the infant's blood until spontaneous respiration fully expands the lungs. The Hering-Breuer reflex is also incited by this procedure. The Shaefer and Sylvester methods of artificial respiration are of no value in asphyxia of the newborn infant because of the absence of negative intrapleural pressure in infants who have never breathed. I agree with Eastman that oxygen–carbon dioxide mixtures should not be used in infant resuscitation and as a general rule stimulation with drugs should be avoided.[5] The various drugs that have been used to stimulate infants are undesirable because their action is unreliable, some causing an excitement stage or a convulsion and all followed by a period of depression.

COMMENT

Premedication is as important in cesarean sections as it is in other surgical procedures. The dose of the medicaments used is kept at a minimum, but an attempt is made to allay maternal apprehension while inducing a minimum of fetal respiratory depression.

Methods of Anesthesia.—The three methods of anesthesia used were lumbar analgesia, epidural anesthesia, and balanced anesthesia.

Lumbar Analgesia with Hypobaric Tetracaine Hydrochloride: Spinal anesthesia induced with 0.1% solution of tetracaine hydrochloride was used in every instance because we believe this to be the safest form of spinal anesthesia available today.[6] A few of the advantages of this type of spinal anesthesia are especially noteworthy in cesarean sections. 1. The ability to maintain the Trendelenburg position throughout the operation aids in the prevention of shock and cerebral anoxia; if these conditions should intervene this position aids in their treatment. 2. Hypobaric tetracaine hydrochloride possesses physical properties that enable accurate control of its spread within the subarachnoid space. 3. The onset of anesthesia is rapid, and the duration of a single dose is adequate for this procedure. 4. Hypobaric tetracaine hydrochloride, 0.1% solution, being dilute is relatively nontoxic. There have been no postoperative neurological sequelae following lumbar analgesia other than headache.

Epidural Anesthesia: It should be emphasized that the administration of a large dose of a potent anesthetic solution in the epidural space is a potentially hazardous procedure, and therefore the anesthesiologist, regardless of how experienced, must always be vigilant and cautious. The technique employed in this series has special safety factors and requires a minimum of equipment. No waiting period has been found necessary after the initial injection of the anesthetic solution. The main advantage of epidural anesthesia is the absence of postanesthetic headaches. The ill repute that spinal anesthesia has received in both the lay press and the medical literature has further enhanced the value of epidural anesthesia.[7]

Balanced Anesthesia: A pleasanter and more rapid induction of anesthesia is made possible by the administration of 100 mg. of thiamylal sodium intravenously. This technique does not appear to cause more fetal depression than occurs when anesthesia is conducted with cyclopropane as the sole anesthetic agent.

Anesthesia Factor.—A mathematical analysis of the perinatal deaths in which anesthesia appeared to be a contributory factor revealed the following data.

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[5] Eastman, cited by Beattie, J. L., and Zwerling, M. H.: Resuscitation of the Asphyxiated Newborn Infant, J. A. M. A. **152**: 216-221 (May 16) 1953.

[6] Lund, P. C., and Cameron, J. D.: Hypobaric Pontocaine: A New Technic in Spinal Anaesthesia, Anesthesiology **6**: 565-573 (Nov.) 1945. Lund, P. C., and Rumball, A. C.: Hypobaric Pontocaine Spinal Anaesthesia: 1,640 Consecutive Cases, ibid. **8**: 181-199 (March) 1947.

[7] Ansbro, F. P.; Gordon, C. A.; Bodell, B., and Latterri, F. S.: Epidural Anesthesia for Cesarean Section: Report of 125 Cases, New York J. Med. **52**: 1901-1905 (Aug. 1) 1952.

Uncomplicated Cesarean Sections: In 318 sections done with conduction anesthesia, there were nine fetal deaths (2.8%). Anesthesia appeared to be a contributory factor in two of these (22%). In 132 sections done with balanced anesthesia there were five fetal deaths (3.8%). Anesthesia appeared to be a contributory factor in four of these (80%).

Complicated Cesarean Sections: In 150 sections done with conduction anesthesia, there were 30 deaths (20%). Anesthesia appeared to be a contributory factor in seven of these (23%). In 71 sections done with balanced anesthesia, there were 24 deaths (33.8%). Anesthesia appeared to be a contributory factor in six of these (25%).

Infant Resuscitation.—The fetus in utero lives in a state of cyanosis with a degree of oxygen unsaturation that is incompatible with extrauterine life. The infant after delivery must therefore quickly make physiological adjustments in his method of arterial oxygenation for survival. The chief causes of asphyxia of the newborn infant are encountered more frequently in delivery by the abdominal than by the vaginal route. The mortality rate of asphyxiated newborn infants is high if the child is not adequately resuscitated, and, since the infant delivered by cesarean section appears to have particular difficulty in making the necessary adjustments for extrauterine life, the importance of resuscitation following delivery by this method cannot be overemphasized.

Perinatal Mortality.—There are many known and unknown factors in the causation of intrauterine and neonatal mortality, some of which were referred to earlier. The clinical results obtained in this series are supported by various laboratory findings. 1. Taylor and co-workers [8] when studying blood oxygen saturation of the newborn infant found that a significantly higher percentage of infants reached saturations over 90% in one hour when regional anesthesia was used than when general or intravenously administered anesthetic agents were used. They concluded that some form of regional anesthesia should be used for deliveries complicated by factors such as fetal immaturity. 2. Several investigators have shown that premature infants are often unable to reach adequate blood oxygen saturations by the first hour of life as consistently as full-term infants.[9] Thus an attempt should be made to avoid the use of analgesic and anesthetic agents that depress the immature respiratory centers of premature infants. 3. Hingson found that fetal anoxia developed in almost every case in which a maternal hypotension of less than 80 mm. Hg existed for five minutes or longer. This indicates that fetal anoxia is not limited to general anesthetic agents. In this series artificial respiration, which was administered if spontaneous respirations were not established in one to two minutes after delivery, was required more frequently following balanced than regional anesthesia.

Intrinsic Fetal Mortality Rate.—I agree with Litchfield and co-workers,[10] who, in an analysis of 969 cesarean sections, found that fetal mortality was the result of the complication of the pregnancy necessitating the section rather than the section per se, and that this mortality rate can be reduced through appropriate obstetric and pediatric measures. In addition to these measures, however, this series indicates that anesthesia also plays an important role in infant mortality rates. It is therefore obvious that improvements in anesthetic methods and techniques can lower this mortality rate. This cannot be accomplished by considering "an intrinsic mortality rate" as the responsible factor.

CONCLUSIONS

An analysis of 671 consecutive cesarean sections established that: (1) the variations in infant mortality rates following cesarean sections conducted with modern anesthetic methods and techniques are statistically insignificant when the fetus is full term and no maternal or fetal complications are present; (2) there is a statistically significant variation in infant mortality rates following cesarean section conducted with various modern methods of anesthesia when the fetus is premature and/or various maternal or fetal complications are present (the fetal mortality rate under these circumstances is lower with conduction anesthesia than with balanced or general anesthesia); (3) in the interest of fetal salvage the use of the term "intrinsic mortality rate in cesarean section" should be discouraged; and (4) anesthesia has a marked influence on the infant mortality rate in cesarean section, the over-all infant mortality rate being slightly lower following conduction anesthesia than following balanced anesthesia.

218 Leon St.

[8] Taylor, E. S.; Govan, C. D., and Scott, W. C.: Oxygen Saturation of the Blood of the Newborn, as Affected by Maternal Anesthetic Agents, Am. J. Obst. & Gynec. 61: 840-854 (April) 1951.

[9] Taylor, E. S.; Scott, W. C., and Govan, C. D.: Studies of Blood Oxygen Saturation and Causes of Death in Premature Infants, Am. J. Obst. & Gynec. 62: 764-777 (Oct.) 1951.

[10] Litchfield, H. R.; Sternberg, S. D., and Halperin, J.: Fetal Mortality in Cesarean Section, J. A. M. A. 151: 783-785 (March 7) 1953.

Incidence of Cancer in Childhood.—During infancy and childhood—the first decade of life—90 per cent of malignant neoplasms develop in the blood or blood-forming organs, connective tissue, neural tissue or are tumors of embryonal or mixed tissues. . . . Around puberty (ten to fourteen years of age) the types of cancer are similar to those appearing during infancy and childhood. At this period of life, malignant neoplasms are more restricted as to site than at any other age period; 80 per cent occur in four tissues—brain, bone, hematopoietic and lymphatic. The termination of puberty is followed by a pronounced change both in the histological type and primary site of cancer. From infancy until puberty the incidence rate declines, and the vast majority of malignant tumors develop in a relatively few organs and tissues. Whatever the etiological agents during this period of life, their effect steadily decreases and by the end of puberty has become comparatively negligible. Immediately following puberty the incidence rate for all forms of malignant tumors begins to increase rapidly, so that by age twenty it again is as high as it was in early infancy. From then until the last years of the life span the incidence of cancer steadily increases. Not only does the incidence of cancer become greater, but the relative frequencies of both the histological types and primary sites also change markedly. The achievement of sexual maturity is followed by an increase in the incidence of malignant tumors arising in embryonal and mixed tissues—in the ovary in females and in the testis in males.—Harold F. Dorn, Ph.D., The Changing Incidence of Cancer Throughout Life, *Bulletin of the New York Academy of Medicine*, October, 1955.

POLYCYTHEMIA ASSOCIATED WITH OBESITY

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In severe grades of obesity, large deposits of fat cover the viscera and fat infiltrates the parenchyma of vital organs. These morphological changes may be reflected in a wide variety of physiological aberrations. Clinical hypertension, albuminuria, and cylindruria may follow excessive perirenal fat deposition. Liver cells, bulging with fat vacuoles, perform relatively poorly in clinical tests of hepatocellular function. The thoracic cavity may be crowded by fat from within and without, and the vital capacity is accordingly compromised with attendant dyspnea on minimal exertion. In a massively obese patient (case 1) who demonstrated rather marked metabolic aberrations of this type, polycythemia was also found. Of particular interest in this case was the complete disappearance of polycythemia with weight reduction and without any other therapy. The related metabolic disturbances were similarly reversed on low-calorie diet alone.

These findings suggested that a form of polycythemia may be related to obesity. In searching the literature, we learned that Baez Villaseñor and his co-workers[1] had found polycythemia in 12 of a group of 240 obese patients (5%) with hematocrits ranging as high as 77%. Howard and Mills[2] wrote of a plethoric type of obesity but elaborated no further on this hematological aspect. Lawrence and his group,[3] in their recent review, described "relative polycythemia" in eight obese patients. The highest observed hemoglobin level in these patients was 18.1 gm. per 100 cc. Their cases were characterized by a low plasma volume without absolute increase in red blood cell mass. However, Rynearson and Gastineau,[4] in their classic monograph on obesity, did not refer to obesity-related polycythemia.

In an effort to study the nature of this relationship further, 260 cases of clinical obesity treated in the University of Minnesota Hospitals were reviewed. These cases represented general hospital admissions, usually for causes other than obesity. Four markedly obese patients of this group, two males and two females, were found to have polycythemia. In each case the hemoglobin level was 19 gm. per 100 cc. or above sometime during the course of their hospitalization. In two of the four obese patients, polycythemia was transient and coincidental to the major illness for which they were being treated. In one case, the patient had clinical symptoms of erythremia but was discharged against advice before the nature of her polycythemia could be further studied. The fourth patient was extensively investigated with respect to polycythemia and certain unusual metabolic manifestations. His course is summarized in case 2.

The incidence of polycythemia in this group was 0.8%. It should be noted that persistent hemoglobin level elevation above 19 gm. per 100 cc. was arbitrarily accepted as unequivocal evidence of polycythemia. Since two of the obese patients had only transient hemoglobin level elevations to this point, they were not included in this calculation. The 0.8% incidence is therefore regarded as a conservative estimate. The over-all incidence of polycythemia at the University Hospitals (based on a total of 150,000 hospital admissions between 1938 and 1953) was 0.08%. Therefore, polycythemia appeared 10 times as frequently in the pathologically obese as contrasted with the unselected hospital population. A massively obese patient was being followed at the University Hospitals hematology clinic at the time of this study. Though he had polycythemia, clinicians had frequently indicated that polycythemia vera was an unsatisfactory diagnosis in his case. The clinical picture presented by this patient closely resembled the others to be described and is included in case 3.

REPORT OF CASES

CASE 1.—A 40-year-old man was admitted to the Minneapolis Veterans Administration Hospital on Oct. 27, 1953. He was referred for diagnostic studies because of albuminuria, obesity, and edema. At the age of 18, the patient weighed 220 lb. (99.88 kg.) and was 5 ft. 11 in. (180.34 cm.) tall. With an admittedly excessive food intake, weight gradually increased to 421 lb. (191.13 kg.). The greatest weight gain occurred after 1950, when the patient changed from construction labor to sedentary work. For six months previous to admission he had exertional dyspnea, orthopnea, ankle edema, and nocturia. Skin ulcerations over the ankles appeared spontaneously seven weeks before admission, and this caused him to consult his private physician. On Oct. 13, 1953, the patient was admitted to a local hospital because of marked albuminuria. Treatment with digitalis, mercurial diuretic, and an 800 calorie diet had resulted in a 40 lb. weight loss at the time of transfer to the Veterans Hospital two weeks later. On examination the patient was chronically ill but appeared somewhat younger than his stated age. He weighed 380 lb. (172.52 kg.). The blood pressure was 122/92 mm. Hg, and the other vital signs were not remarkable. Retinal veins were distended. Medium-pitched rhonchi were audible over both lung fields. Physical examination of the heart was not remarkable, but x-ray showed mild left ventricular prominence. Secondarily infected skin ulcers covered both medial malleoli. Mild varicosities and edema were evident in the lower extremities. The patient was given an 800 calorie diet supplemented with multiple vitamins. Except for treatment with intramuscularly administered penicillin and bacitracin dressings to the skin lesions, no other therapy was used.

On admission the hemoglobin level was 21.5 gm. per 100 cc. and the hematocrit was 73%. The red blood cell count was 6,160,000 per cubic millimeter, the white blood cell count was 9,750 per cubic millimeter, and differential count was normal. Platelet count was 114,000 per cubic millimeter, and the reticulocytes were 1.4%. The mean corpuscular volume was 118.5 cubic microns, mean corpuscular hemoglobin 25 micromicrograms, and mean corpuscular hemoglobin concentration 29%. Bone marrow smear and aspiration biopsy displayed no evidence of increased erythropoietic, myeloid, or megakaryocytic activity.

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[1] Baez Villaseñor, J.; Dominguez Torix, J. L., and Rodriguez, R.: Policitemia y obesidad: *informe preliminar*, Rev. *invest. clin.* 3:57 (Jan.) 1951.

[2] Howard, C. P., and Mills, E. S.: Obesity, in The Oxford Loose-Leaf Medicine, Christian, H. A., editor, New York, Oxford University Press, 1949, vol. 4, pt. 1, pp. 195-214.

[3] Lawrence, J. H.; Berlin, N. I., and Huff, R. L.: The Nature and Treatment of Polycythemia: Studies on 263 Patients, Medicine 32:323 (Sept.) 1953.

[4] Rynearson, E. H., and Gastineau, C. F.: Obesity, Publication 36, American Lecture Series, monograph in American Lectures in Endocrinology, Springfield, Ill., Charles C Thomas, Publisher, 1949.

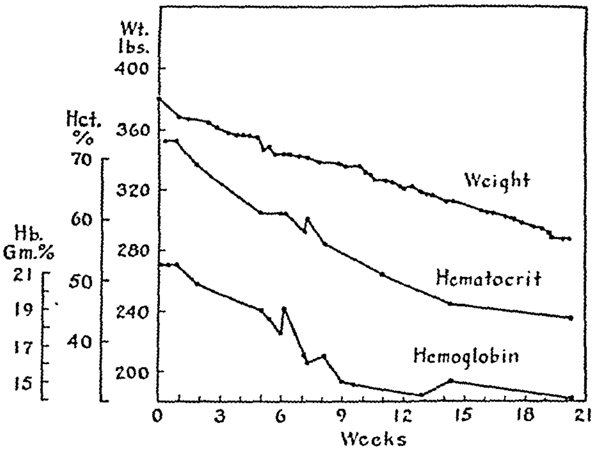
Urinary 17-hydroxycorticoid excretion was normal. The patient was kept under hospital observation for almost five months. He was fully cooperative and meticulous in adherence to diet. Subjective improvement accompanied weight reduction, especially in terms of respiratory reserve and increased physical maneuverability. Polycythemia subsided promptly (see figure). At the end of approximately two months and following the observed loss of 45 lb. (20 kg.) of body weight, the hemoglobin level fell to 15 gm. per 100 cc. and the hematocrit to 51%. Improvement in the various metabolic functions was gratifying (see table). Massive albuminuria subsided. Phenolsulfonphthalein excretion and urine-concentrating capacity became normal. The blood urea nitrogen fell to one-half of its earlier value, and the urinary sediment became normal. Liver function improved somewhat more slowly, but recovery was ultimately complete. Improvement in vital capacity was also notable. The fall in arterial hemoglobin saturation was surprising, and the direction of the change suggested that hypoxemia was not the cause of the patient's original polycythemia. During the period of hospital observation, the cardiac contour reverted to normal. Finally, it was of interest that the red blood cell indexes also improved so that the macrocytosis subsided. The mean corpuscular volume was 98 cubic microns, the mean corpuscular hemoglobin 31.8 micromicrograms, and the mean corpuscular hemoglobin concentration 33% by mid-March, 1954.

Renal, Hepatic, and Cardiorespiratory Function Before and Following an Observed Loss of Ninety Pounds of Body Weight (Case 1)

	Weight, by Date	
	380 Lb. (172.52 Kg.), 10/28/53	290 Lb. (141.66 Kg.), 3/10/54
Renal Function		
24 hr. urine protein, gm	9.72	0.13
Phenolsulfonphthalein excretion at 30 min., %	26	41
Maximum urine concentration	1.019	1.027
Blood urea nitrogen, mg. per 100 cc	20.5	10.0
Urinary sediment		
Hyaline casts per high-power field	30-40	1-2
Granular casts	4-6	0
White blood cells	4-6	Occasional
Red blood cells	1-2	Occasional
Hepatic Function		
Serum bilirubin, mg. per 100 cc.		
1 min	0.5	0.2
Total	2.3	1.5
Sulfobromophthalein (at 45 min.), %	48.4	27.8
Thymol turbidity, units	4.5	2.8
Cephalin flocculation at 48 hr	3 +	0
Zinc sulfate turbidity, units	19.7	16.7
Albumin-globulin ratio	4.4:3.6	3.8:2.7
Cardiorespiratory Function		
Vital capacity, liters		
Total	3.2	4.4
1 sec	2.2	2.5
Arterial oxygen saturation, %	90.8	84.5

On follow-up examination on May 20, 1954, seven months after admission, the weight had decreased to 259 lb. (117.59 kg.). Hemoglobin level was 14.5 gm. per 100 cc. There was a trace of albumin in the urine. Sulfobromophthalein and zinc sulfate turbidity tests were normal. Arterial oxygen saturation was 95.7% (normal, 96.4 to 100%). Subjectively, the patient was well. In late November, 1954, the weight had decreased to 226 lb. (102.5 kg.) and the urinalysis was negative.

Case 2.—A 28-year-old man was first referred to the University of Minnesota Hospitals Clinic in June, 1949, because of hypertension. He was 5 ft. 10 in. (177.8 cm.) tall and weighed 254 lb. (102.60 kg.), his maximum weight. In 1942 he was rejected for military service because of hypertension and albuminuria. A family history of hypertension and diabetes was obtained. His blood pressure was 180/100 mm. Hg and was unaffected by piperoxan (Benodaine) hydrochloride. Grade 1 albuminuria was detected. The hemoglobin level was 19.8 gm. per 100 cc., red blood cell count 6,070,000 per cubic millimeter, and the hematocrit 54%. In February, 1950, the patient was studied on the inpatient service for two weeks because of weakness, chest pain, diffuse abdominal pain, and burning fingertips. Trunk obesity and pink stria of the arms were observed. The blood pressure was 160/110 mm. Hg. A clinically suspected duodenal ulcer was visualized on x-ray study. Mild albuminuria persisted, and 1+ glycosuria was found. A glucose tolerance test suggested mild diabetes mellitus that was insulin resistant. The hemoglobin level was 19.8 gm. per 100 cc., red blood cell count 6,100,000 per cubic millimeter, and the hematocrit 56%. The white blood cell count was 14,450 per cubic millimeter with normal differential. Platelet count was normal. The blood volume, as determined by the dye method, was 6.8 liters. Slight elevation of thymol turbidity and zinc sulfate flocculation values indicated minimal hepatocellular dysfunction. Renal function was essentially normal. The albumin-globulin ratio was 3.6:3.4. Bone marrow smear and biopsy were essentially normal. An electrocardiogram showed nonspecific myocardial damage. Urinary 17-ketosteroid, 11-oxysteroid excretion, and eosinophil counts were normal. Roentgen therapy to the pituitary gland (with a total of 2,460 r deep dose) was administered without effect. Phlebotomies were performed with symptomatic improvement at approximately monthly intervals following his discharge from the hospital. Four courses of radioactive phosphorus (5.5 mc. in February, 1950, 3 mc. in April, 1951, 4 mc. in November, 1951, and 4 mc. in February, 1953) did not affect the polycythemia. The highest observed hemoglobin level was 21.6 gm. per 100 cc. and the highest hematocrit, 56%. The white blood cell count varied from normal to a high of 18,700 per cubic millimeter, but platelet counts were consistently normal.



Relationship of hematocrit and hemoglobin level to weight loss (case 1).

In December, 1953, the patient was readmitted to the hospital for one week because of shortness of breath, chest pain on exertion, and ankle swelling. He appeared moderately plethoric. His blood pressure was 160/90 mm. Hg. Weight was essentially unchanged. Urinalysis revealed 2+ albumin. Hemoglobin level was 18.2 gm. per 100 cc., red blood cell count was 6,110,000 per cubic millimeter, and white blood cell count was 9,750 per cubic millimeter with normal differential. Arterial hemoglobin saturation was 92.8%. Blood studies, including urea nitrogen, carbon dioxide, sodium, and potassium, were again normal. Liver function was normal. X-ray studies of the bony skeleton and gastrointestinal tract and an intravenous pyelogram were essentially negative. Urinary 17-hydroxysteroids were excreted in normal quantity. Since his last admission, symptoms have persisted and weight remains unchanged. Phlebotomies continue to offer transient relief.

Case 3.—A 50-year-old man was first examined at the University Hospitals Clinic in April, 1948. He was 5 ft. 11 in. (180.34 cm.) tall and weighed 305 lb. (138.47 kg.), having lost 40 lb. of weight in the previous half year. His maximum weight, 10 years earlier, had been 418 lb. (189.77 kg.). The patient's private physician had found glycosuria and a diabetic glucose tolerance curve three weeks before. The initial hemoglobin level was 17.9 gm. per 100 cc., and the red blood cell count was 5,800,000 per cubic millimeter. Low-calorie diet was prescribed but poorly adhered to. In February, 1950, the patient's hemoglobin level was 17.5 gm. per 100 cc., the red blood cell count was 6,100,000 per cubic millimeter, and the hematocrit was 53%. The white blood cell count and differential count were normal. He complained of tingling in his hands and feet and a sensation of pressure in his head. A 700 cc. phlebotomy gave prompt relief. Phlebotomies were repeated at the patient's request at approximately monthly intervals. During the ensuing period, the highest hemoglobin level observed was 19.2 gm. per 100 cc. and the highest hematocrit, 54%. Platelet counts were within normal limits. Two courses of treatment with radioactive phosphorus (4 mc. in June, 1951, and 6 mc. in July, 1952) were without effect. Weight was maintained at about 300 lb. (136.20 kg.), repeated admonition regarding diet notwithstanding. A daily insulin requirement of 70 units of isophane (NPH) insulin gradually established itself over the ensuing three years. A bone marrow biopsy (June, 1954) revealed a high normal fat content, and cell study lends no support to the clinical diagnosis of polycythemia vera.

COMMENT

Polycythemia related to obesity appears to be sufficiently distinctive with respect to its clinical manifestation and its therapy to warrant separate consideration. This syndrome must accordingly be differentiated from polycythemia vera and the secondary polycythemias (of hypoxemia). In the reported cases, no change in the peripheral blood picture was found, except for the increased number, and perhaps increased size, of the red blood cells. In polycythemia vera, the white blood cell count is commonly elevated. The myeloid leukocytes are both relatively and absolutely increased and immature red and white blood cells are often seen in the peripheral blood. The platelet count is frequently excessive.[5] By contrast, no such white blood cell or platelet alterations were observed in these cases. The bone marrow in polycythemia vera is characteristically very cellular. Myeloid, erythroid, and megakaryocytic elements contribute to diffuse hyperplasia. The volumetric pattern of such bone marrow indicates an appreciable increase of the myeloid-erythroid layer at the expense of the fat layer.[6] In the three cases described, bone marrow smear, biopsy, and hematocrit did not demonstrate these changes. Splenomegaly was observed in 90% of Wintrobe's 21 cases of polycythemia vera.[5] Though palpation is an admittedly unreliable technique in very obese individuals, splenomegaly was both clinically and roentgenographically sought. No splenomegaly was found in the present cases. Neither of the two patients who were treated with radiophosphorous obtained any detectable blood cell suppression from this therapy. Subjective symptoms, including dyspnea, headache, blurred vision, tingling of fingers and toes, and ill-defined malaise, were recorded for the obese patients. In this respect they resembled those of polycythemia due to other causes.

Impaired arterial oxygen saturation in chronic pulmonary disease, congenital (and certain cases of acquired) heart disease, syphilis of the pulmonary artery (*Ayerza's syndrome*), *high altitudes*, and related conditions may result in secondary polycythemia. These patients are commonly cyanotic. Secondary polycythemia and polycythemia of obesity both demonstrate a normal peripheral blood picture. In secondary polycythemia, however, the bone marrow responds to chronic hypoxemia with diffuse hyperplasia of all elements.[7] Moreover, the *sine qua non* of this type of polycythemia is a marked decrease in oxygen saturation of an arterial blood sample. In the present cases, no cyanosis was observed. Bone marrow changes were essentially absent. The arterial oxygen saturation, determined in two cases, yielded slightly lower than normal values. Polycythemia of obesity differs from secondary (or hypoxemic) polycythemia in that arterial oxygen saturation is only slightly depressed. The relationship between polycythemia and the various metabolic dysfunctions observed in these patients requires further study. The role of obesity was particularly well illustrated in the first case. Renal function was decreased, and the presence of marked albuminuria suggested serious kidney pathology. The elevated serum bilirubin, marked sulfobromophthalein retention, and abnormal flocculation tests indicated liver involvement. The vital capacity increased with weight reduction. The polycythemia decreased along with improvement in kidney, liver, and respiratory function. In the other cases, weight reduction was unfortunately not achieved and both polycythemia and metabolic aberrations persisted. The triad of hypertension, polycythemia, and impaired glucose tolerance is suggestive of adrenocortical hyperfunction (Cushing's syndrome). The clinical observations and normal urinary steroid studies, however, excluded this diagnosis.

SUMMARY AND CONCLUSIONS

A markedly obese patient (case 1) had polycythemia and certain renal, hepatic, and cardiorespiratory abnormalities. These manifestations were reversed with weight reduction alone. A 5% incidence of polycythemia in obese patients had previously been reported by Mexican authors. Two hundred sixty cases of obesity were subsequently reviewed. Four cases of polycythemia were found in this group. In the present study, polycythemia occurred 10 times more frequently in pathologically obese patients in comparison to the total patient population. In three cases of obesity-related polycythemia studied with respect to this problem, the clinical findings differ sufficiently from polycythemia vera and secondary polycythemia (of hypoxemia) to warrant separate classification of this syndrome. Unlike polycythemia vera there appears to be no increase in immature cells, white blood cells, or platelets in the peripheral blood, and the bone marrow does not display hyperplasia. Splenomegaly is absent, and moderate doses of radiophosphorus do not influence the blood cell count. The arterial oxygen saturation is only slightly depressed, and cyanosis is absent. The condition may occur in association with cardiorespiratory, liver, and renal dysfunction. The

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[5] Wintrobe, M. M.: Clinical Hematology, ed. 3, Philadelphia, Lea & Febiger, 1951, pp. 707-737.

[6] Sundberg, R. D.: I. Aspiration Biopsy of Bone Marrow, Minnesota Univ. Hosp. Bull. 21:471 (May 26) 1950.

[7] A Syllabus of Laboratory Examinations in Clinical Diagnosis: Critical Evaluation of Laboratory Procedures in the Study of the Patient, Ham, T. H., editor, Cambridge, Mass., Harvard University Press, 1950, p. 75.

underlying cause of these manifestations is thought to be excessive adiposity. Weight reduction without other therapy may be curative.

ADDENDUM

Polycythemia of obesity has been found in two additional patients and was reversed in both cases by dietary weight reduction. Later studies have characterized this condition as a form of secondary polycythemia due to inadequate pulmonary ventilation, presumably because of the mechanical barrier created by fat. Since arterial oxygen saturation is only slightly depressed, it is postulated that only the most sensitive individuals respond with polycythemia. The relative rarity of the condition is thereby explained.

DIVISION OF TIBIAL COLLATERAL LIGAMENT FOR REMOVAL OF MEDIAL MENISCUS

Julius S. Neviaser, M.D., Washington, D. C.

Many operative approaches have been described and an assortment of special knives or retractors have been devised to facilitate the complete removal of the medial meniscus from the knee joint. The most simple and direct surgical approach is by division of the tibial collateral ligament. This study constitutes a review of 68 patients operated on for removal of the medial meniscus by this procedure. In addition, four other patients had the fibular collateral ligament divided for complete removal of the lateral meniscus because of large cyst formations. This series of cases, covering a period of eight years' experience, has proved that the ultimate stability of the knee joint is not impaired.

Eight years ago I was removing a torn medial meniscus by the usual anterior medial approach. As the anterior portion of the cartilage was freed and pulled forward with a Kocher clamp, the cartilage, which apparently was extremely friable, yet firmly fixed posteriorly, ruptured transversely and recoiled suddenly into the back of the joint. It was impossible to draw it forward, so an incision was made behind the tibial collateral ligament to reach the posterior portion of the cartilage. Even after freeing this part of the cartilage it could not be removed, although the short anterior end was passed backward through the posterior medial opening in the capsule. It was evident that further attempts at mobilization of the cartilage would continue to traumatize the articular surface of the joint; therefore, as a last resort, the tibial collateral ligament was divided. Only then did I realize how easy it was to expose and remove the cartilage completely. The patient made an uneventful recovery without any instability after suture of the ligament. From this experience evolved the decision to use this approach as the routine surgical procedure for removal of the medial meniscus.

It should be mentioned here that this form of approach has been advocated by others in the past. Tavernier,[1] in 1933, published a series of 73 meniscectomies in which he made a transverse incision with section of the internal ligament. His results were excellent, with no laxity or lack of stability of the knee. He urged the English-speaking surgeons to adopt this procedure. Monod [2] and Cadenat [3] also suggested the sectioning of the ligament for complete removal of the cartilage. In 1953, Aufranc [4] recommended releasing the lateral ligaments from the femoral condyle for better visualization and easier removal of the meniscus.

ANATOMY

There are two distinct parts to the tibial collateral ligament (fig. 1). The superficial part, which is the larger and longer, arises from the medial epicondyle of the femur to insert into the medial condyle of the tibia about 2 in. (5.08 cm.) below knee joint level. The anterior border of this strong, broad, flat, and triangular ligament is vertical, but its posterior border is oblique above and below so that its widest part is over the medial meniscus at the joint space. The deep part of the ligament is attached to the articular margins of the femur and tibia on their medial aspects and is continuous with the capsule of the knee joint in front and behind, thus forming part of the capsule of the joint. This deep layer is attached closely to the medial meniscus. The two layers of this ligament are fused into a single structure above but tend to separate below. Strong, resistant, fibrous supports, called the medial patellar retinaculum, run from the medial border of the patella toward the anterior border of the upper part of the tibial collateral ligament. In a fully extended knee, the collateral ligaments are taut. This tension on the tibial collateral ligament is distributed throughout its width in extension. However, in flexion, the area of tension is shifted to the anterior portion of its fibers while the posterior portion is relaxed.

OPERATIVE TECHNIQUE

A horizontal, very slightly curved incision is made at the level of the knee joint, beginning about 1 in. (2.54 cm.) medial to the ligamentum patellae and running backward toward the posterior margin of the medial femoral condyle (fig. 2). The superficial layer of the tibial collateral ligament is exposed at its anterior as well as its posterior borders. A small transverse incision is made in the medial patellar retinaculum just forward of the anterior border of the ligament. A narrow periosteal elevator is then passed through this opening under the medial ligament immediately above the attachment of the medial meniscus to come out behind the posterior border of the ligament (fig. 3). This simple maneuver

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Read before the Section on Orthopedic Surgery at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

[1] Tavernier, L.: Résultats éloignés d'une série de 73 méniscectomies, Bull. et mém. Soc. nat. de chir. **59**: 1194-1196, 1933.

[2] Monod, R.: Arrachement de la corne postériere du ménisque interne: Extirpation de la totalité du ménisque par l'incision latérale en L, Bull. et mém. Soc. nat. de chir. **58**: 1594-1595, 1932.

[3] Cadenat, F. M.: Les voies de pénétration des membres, ed. 2, Paris, Gaston Doin & Cie, 1948.

[4] Aufranc, O. E.: Personal communication to the author.

In three cases minimal instability of the knee joint was noted after one year when the leg was flexed to 165 degrees; however, this disappeared when the patient was instructed to contract the quadriceps. In spite of this finding, the patients had no complaints, and it is still questionable whether this minimal instability had any significance. Six patients had demonstrable atrophy of the quadriceps that persisted for six months or longer; however, all returned to normal somewhere between 18 to 30 months after surgery. This delay in the return of quadriceps size was probably related to the fact that these patients had muscle atrophy and knee complaints for at least a month prior to surgery. In addition, five of the six patients presented other pathology besides meniscus injury at operation. In spite of the persistent measurable diminution in the circumference of the thigh, no real diminution in the strength of this muscle group could be demonstrated. Tavernier also noted this unusual finding.

Seven patients developed fluid in the knee joint when active motion was instituted after removal of the plaster. They required restricted activity and aspirations, the swelling eventually disappearing in from three to eight weeks' time. Two of these patients were in the group with quadriceps atrophy that persisted after six months. In one case in which both medial and lateral meniscuses were removed, the synovitis persisted for eight months. One cannot attribute joint effusion to the operative approach but rather to a complication of knee joint surgery.
a common and annoying complication that many
edic surgeons experience.

SUMMARY AND CONCLUSIONS

In a series of 72 cases, the tibial collateral li
was sectioned in 68 cases and the fibular collater
ment was sectioned in 4 cases to facilitate removal
medial or lateral meniscus. The value of this pro
was confirmed by the pathology visualized at
a good part of which would have remained unno
the conventional approaches had been utilized
slightly longer period of immobilization necessit
the wearing of a plaster walking cylinder has i
pensations in allowing the patient early n
weight bearing, as well as decreased potential
bolic phenomena.

The advantages gained by division of the til
lateral ligament are: 1. The medial meniscus
pletely removed. 2. Operative trauma is dim
The prolonged stretching and forcible retractio
capsule and synovial membrane, which may ca
sistent postoperative synovitis, is eliminated.
dency of scarring the articular cartilages is avo
Cysts of the meniscus can be removed with the
in one piece. 4. Inspection of more than half of
is facilitated (fig. 9). This allows for further i
tion and treatment, if necessary, of any other
thology, such as removal of loose bodies, da
the cruciate ligaments (fig. 10), osteochond
secans, or damage to the lateral meniscus. 5.
quent operation for removal of the posterior se
the meniscus is avoided.

1918 K St. N. W. (6).

CLINICAL USE OF FLUDROCORTISONE ACETATE

PRELIMINARY REPORT

George J. Hamwi, M.D.
and
Robert F. Goldberg, M.D., Columbus, Ohio

REPORT OF CASES

CASE 1.—The first case in which this medicament was
that of a 40-year-old woman with anorexia *nervosa* who
had gradually decreased to 84 lb. (38.6 kg.) and who
responded to other therapy. She received 2 mg. of fludro
acetate daily for 13 days and within two days expe
sense of well-being. Dietary intake, previously abo
calories daily, increased to over 2,000 calories, and h
increased to 99 lb. (44.9 kg.). After cessation of treat
patient had a brief period of mild depression, but calo
continued high. Within four days her weight decreased
(42.2 kg.), suggesting *fluid loss. Adrenal responsiv*
exogenous corticotropin (ACTH) before and during the
shown by increased urinary steroid excretion (fig. 1), i
no inhibition of corticotropin effect on the adrenal c
the dosage given.

In this case of anorexia nervosa a marked
g and increased appetite, resulted fror
rocortisone acetate. The patient
weight, approximately 6 lb. (
due to water retention.
response of the

ough some patients have had their plasters removed h sooner, the average time being 18.8 days. After removal of the plaster, the usual physical therapy, ifically directed toward rehabilitation of the quadps femoris is instituted.

TABLE 1.—*Pathology Noted at Operation*

	Cases
mplete longitudinal split of the medial meniscus	29
ngitudinal tears of the posterior segment of the meniscus	12
mbination of longitudinal and transverse tears	11
artial transverse tears	4
nterior segment tears	7
yst formations	
Medial meniscus	5
Lateral meniscus	4
ther pathology found associated with medial meniscus injury	
Loose bodies	5
Osteochondritis dissecans at medial femoral condyle	7
Discoid lateral meniscus	2
Cruciate ligament injury with torn lateral meniscus	1
Fibrillation of articular surface of the patella	1
Fibrillation of articular surface of the tibia	2

POSTOPERATIVE COURSE

The postoperative course of all patients was similar, that they all could walk a day or two after surgery with minimal amount of pain. As a rule these patients did not develop any postoperative knee effusion, hemarthrosis, or any ankle or foot swelling. This could be related to the compression of the knee and leg afforded by the plaster. It also tended to lessen the chances for any postoperative phlebitis by compressing the superficial veins and forcing the return of blood through the deep veins. The average length of hospital stay for all patients was six days.

TABLE 2.—*Data on Sixty-Eight Cases of Division of Tibial Collateral Ligament for Removal of Medial Meniscus*

Cases		Age, Yr.		Period of Follow-Up		Immobilization in Plaster, Days	
Males	56	Average	34	Average	46.3 mo.	Average	18.8
Females	12	Youngest	12	Shortest	3 mo.	Shortest	10
Industrial	35	Oldest	58	Longest	8 yr.	Longest	21
Private	33						
		Return to Work, Postoperative, Wk.		Quadriceps Atrophy After 6 Mo.			
		Private cases	6.2	Cases	6		
		Industrial cases	8.1				

FINDINGS AT OPERATION

The most common medial meniscus injury was the complete longitudinal tear (fig. 6). This occurred in 29 cases (table 1). This is the usual bucket-handle tear, which is relatively easy to diagnose as it is generally associated with locking. The next most frequent lesion seen was the longitudinal tears of the posterior segment. This type of injury would have been missed by the usual anterior medial approach, particularly in two cases where the split was found on the under surface of the posterior segment. There were 11 cases with various combinations of longitudinal and transverse tears. In two cases of this group, besides the multiple splits, there were pedunculated tags present about the inner half of the meniscus, and, in another, there was a polypoid type of hypertrophy at the concave side of the meniscus. It was very evident that in such cases it would be well to have the meniscus removed completely. In the five cases of cyst formation of the medial meniscus, there was some form of injury to the meniscus. In as much as all of these cases showed the cysts present posteriorly, the advantage of a complete exposure of the inner half of the knee joint is obvious.

As noted in table 1, in five cases there were loose bodies associated with the meniscus injury. These were removed, as well as the osteochondral bodies found in the seven cases of osteochondritis dissecans. This was easily accomplished through the described operative approach. Sufficient exposure was possible to note pathology in the lateral meniscus in three cases. Two patients had discoid lateral meniscuses, and one had an oblique transverse tear of the lateral cartilage. In these instances, the lateral meniscus was removed by a separate anterior lateral incision. The postoperative management of these three cases was similar to those in which the medial meniscus was removed alone. In four cases of cysts of the lateral meniscus, the fibular collateral ligament was sectioned. In each instance these large firm cysts were situated at the joint line just under and in front of the lateral ligament, and by cutting the ligament it was possible to remove the cyst with the cartilage completely (fig. 7 and 8).

RESULTS

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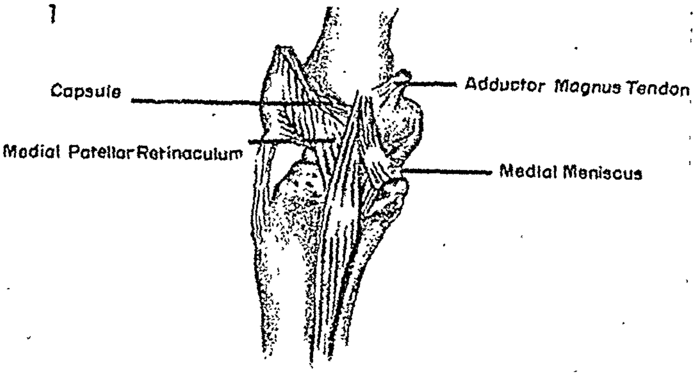

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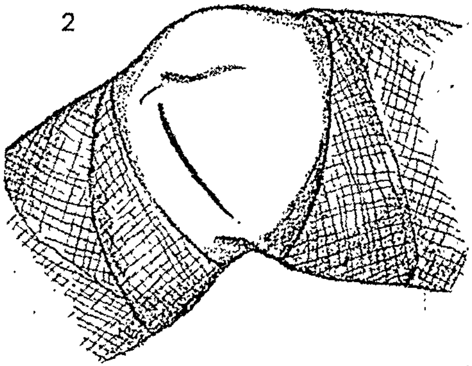

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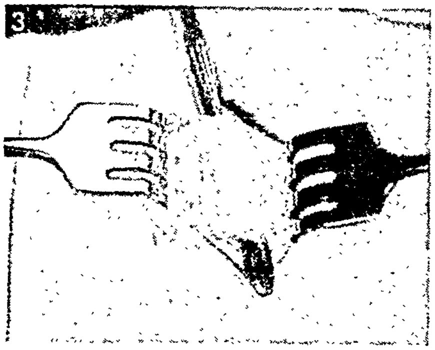

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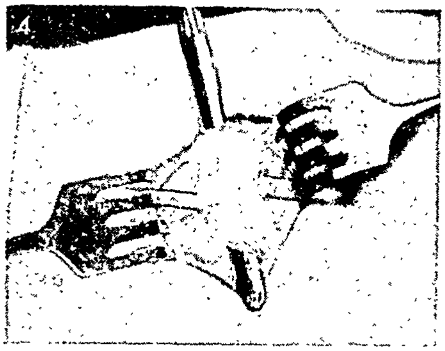

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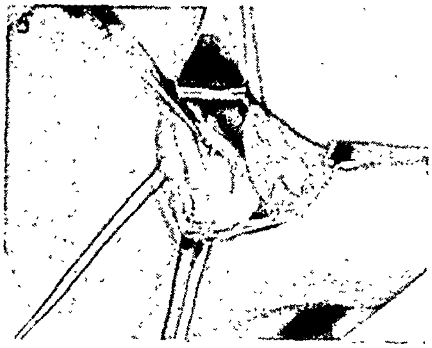

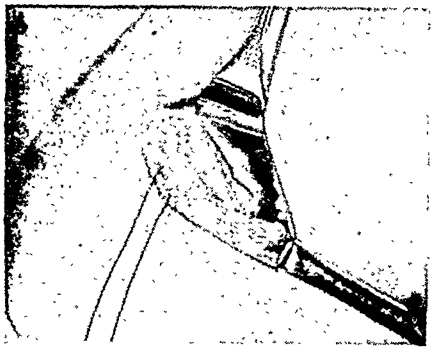

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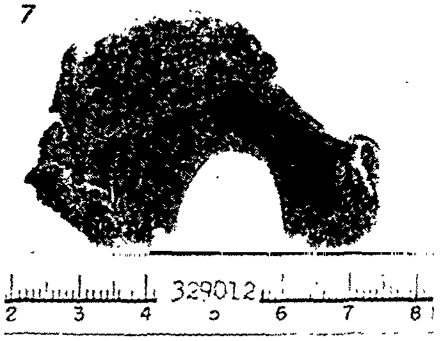

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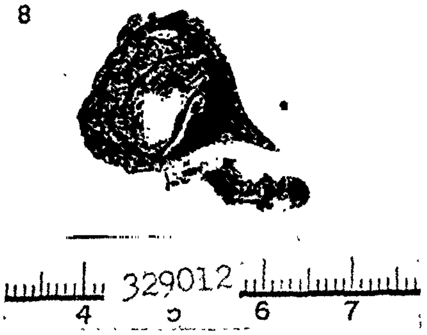

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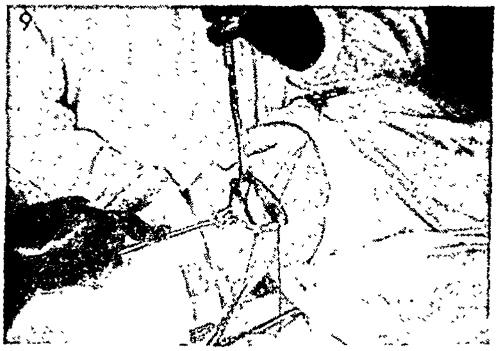

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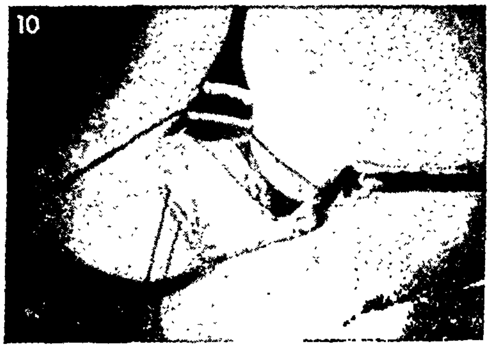

Fig. 1.—Tibial collateral ligament of knee joint. Fig. 2.—Line of incision at inner aspect of knee joint. Fig. 3.—Narrow periosteal elevator passed under tibial collateral ligament. Fig. 4.—Retention sutures placed in ligament above and below line of division. Fig. 5.—Medial meniscus can be completely removed through this approach. Fig. 6.—Complete bucket-handle tear easily seen. Fig. 7.—Lateral meniscus with large cyst formation removed in one piece. Fig. 8.—Section of cyst of lateral meniscus. Fig. 9.—More than entire inner half of knee joint visualized. Fig. 10.—Note damage to posterior cruciate ligament.

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Private cases..............	6.2	Cases.....	6
Industrial cases...........	8.1		

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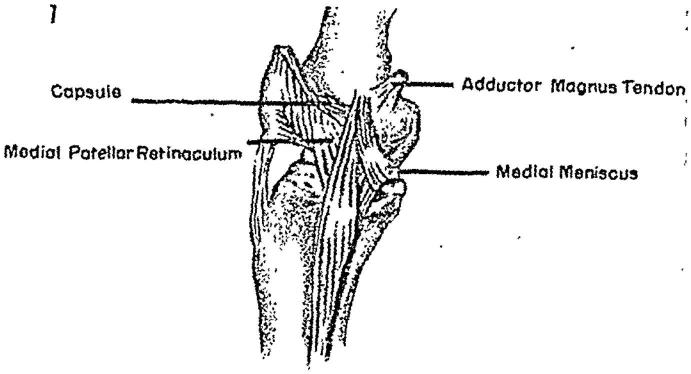

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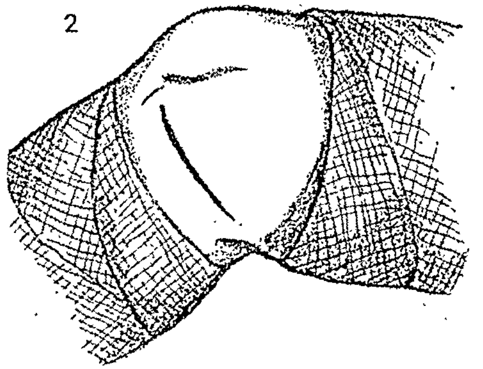


Fig. 2.—Line of incision at inner aspect of knee joint.

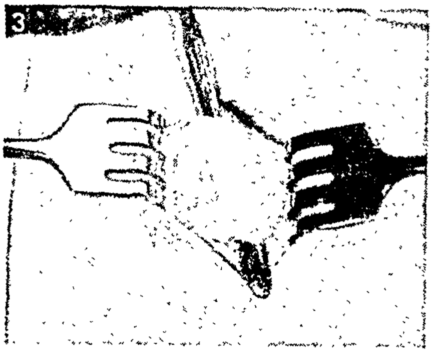


Fig. 3.—Narrow periosteal elevator passed under tibial collateral ligament.

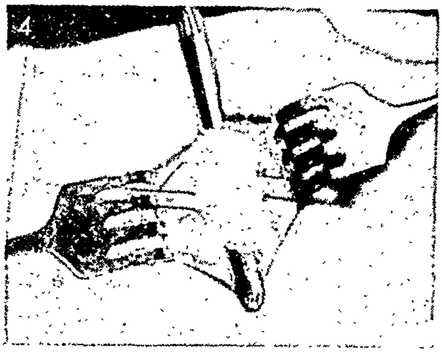


Fig. 4.—Retention sutures placed in ligament above and below line of division.

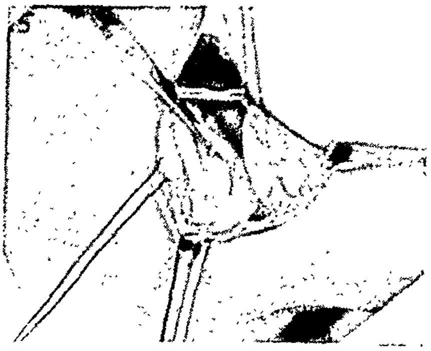


Fig. 5.—Medial meniscus can be completely removed through this approach.

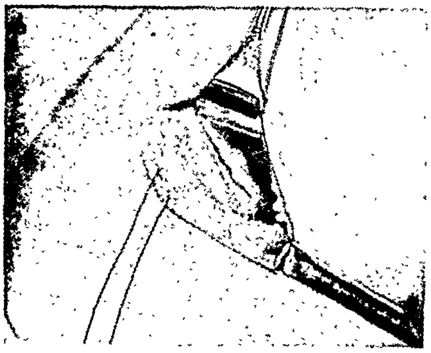


Fig. 6.—Complete bucket-handle tear easily seen.

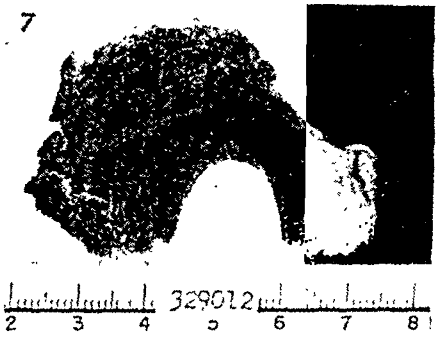


Fig. 7.—Lateral meniscus with large cyst formation removed in one piece.

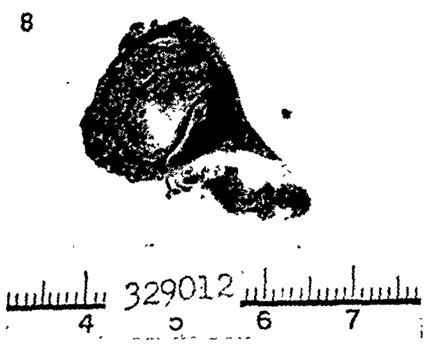


Fig. 8.—Section of cyst of lateral meniscus.

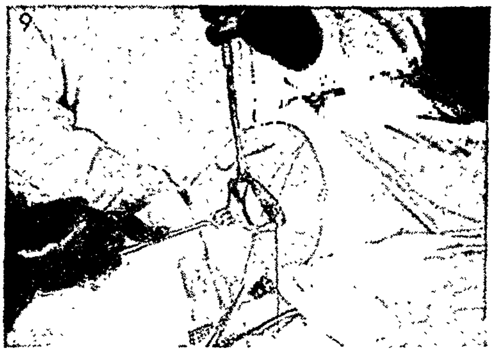
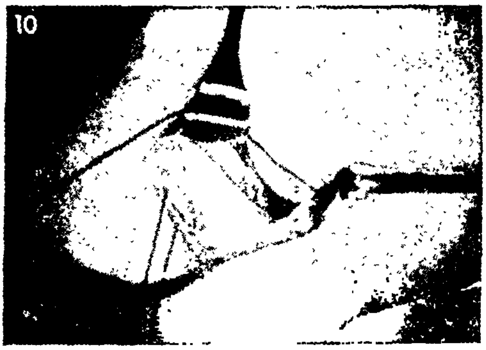


Fig. 9.—More than entire inner half of knee joint visualized



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In three cases minimal instability of the knee joint was noted after one year when the leg was flexed to 165 degrees; however, this disappeared when the patient was instructed to contract the quadriceps. In spite of this finding, the patients had no complaints, and it is still questionable whether this minimal instability had any significance. Six patients had demonstrable atrophy of the quadriceps that persisted for six months or longer; however, all returned to normal somewhere between 18 to 30 months after surgery. This delay in the return of quadriceps size was probably related to the fact that these patients had muscle atrophy and knee complaints for at least a month prior to surgery. In addition, five of the six patients presented other pathology besides meniscus injury at operation. In spite of the persistent measurable diminution in the circumference of the thigh, no real diminution in the strength of this muscle group could be demonstrated. Tavernier also noted this unusual finding.

Seven patients developed fluid in the knee joint when active motion was instituted after removal of the plaster. They required restricted activity and aspirations, the swelling eventually disappearing in from three to eight weeks' time. Two of these patients were in the group with quadriceps atrophy that persisted after six months. In one case in which both medial and lateral meniscuses were removed, the synovitis persisted for eight months. One cannot attribute joint effusion to the operative approach but rather to a complication of knee joint surgery. This is a common and annoying complication that many orthopedic surgeons experience.

SUMMARY AND CONCLUSIONS

In a series of 72 cases, the tibial collateral was sectioned in 68 cases and the fibular collateral lig ment was sectioned in 4 cases to facilitate removal of medial or lateral meniscus. The value of this procedu was confirmed by the pathology visualized at surger a good part of which would have remained unnoticed the conventional approaches had been utilized. T slightly longer period of immobilization necessitated the wearing of a plaster walking cylinder has its compensations in allowing the patient early nonsupporte weight bearing, as well as decreased potential for embolic phenomena.

The advantages gained by division of the tibial co lateral ligament are: 1. The medial meniscus is completely removed. 2. Operative trauma is diminishe The prolonged stretching and forcible retraction of th capsule and synovial membrane, which may cause pe sistent postoperative synovitis, is eliminated. Any te dency of scarring the articular cartilages is avoided. Cysts of the meniscus can be removed with the menisc in one piece. 4. Inspection of more than half of the joi is facilitated (fig. 9). This allows for further investig tion and treatment, if necessary, of any other joint p thology, such as removal of loose bodies, damage the cruciate ligaments (fig. 10), osteochondritis di secans, or damage to the lateral meniscus. 5. A subs quent operation for removal of the posterior segment the meniscus is avoided.

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CLINICAL USE OF FLUDROCORTISONE ACETATE

PRELIMINARY REPORT

George J. Hamwi, M.D.
and
Robert F. Goldberg, M.D., Columbus, Ohio

Halogenation of cortisone and hydrocortisone in the 9-α position has been shown [1] to alter the effects of these compounds both qualitatively and quantitatively. Fludrocortisone acetate (9-α-fluorohydrocortisone) was shown to have a cortisone-like effect in adrenalectomized dogs averaging approximately 20 times as great, milligram for milligram, as hydrocortisone. It was also shown to have an effect on mineral metabolism similar to desoxycorticosterone (Doca) acetate but averaging five times as great as desoxycorticosterone. In order to evaluate the effect of this medication we have administered fludrocortisone acetate to several patients with diseases that have been found amenable to adrenal steroid therapy.

REPORT OF CASES

Case 1.—The first case in which this medicament was used was that of a 40-year-old woman with anorexia nervosa whose weight had gradually decreased to 84 lb. (38.6 kg.) and who had not responded to other therapy. She received 2 mg. of fludrocortisone acetate daily for 13 days and within two days experienced a sense of well-being. Dietary intake, previously about 1,200 calories daily, increased to over 2,000 calories, and her weight increased to 99 lb. (44.9 kg.). After cessation of treatment the patient had a brief period of mild depression, but caloric intake continued high. Within four days her weight decreased to 93 lb. (42.2 kg.), suggesting fluid loss. Adrenal responsiveness to exogenous corticotropin (ACTH) before and during therapy was shown by increased urinary steroid excretion (fig. 1), indicating no inhibition of corticotropin effect on the adrenal cortices in the dosage given.

In this case of anorexia nervosa a marked sense of well-being and increased appetite resulted from treatment with fludrocortisone acetate. The patient gained 13 lb. (5.9 kg.) of weight, approximately 6 lb. (2.7 kg.) of which were probably due to water retention. Fludrocortisone acetate did not prevent response of the adrenal cortices to corticotropin.

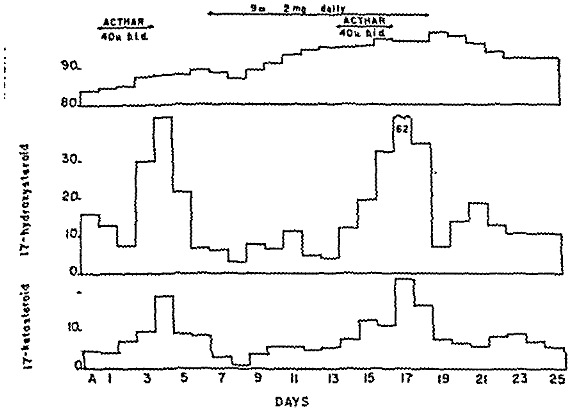
From the Division of Endocrinology and Metabolism, Department of Medicine, Ohio State University.

This study was supported by grants from the Comly-Coleman Fund, the Institute of Nutrition of Ohio State University, and Merck & Company, Inc., Rahway, N. J.

The fludrocortisone acetate (9-α-fluorohydrocortisone) and the cortisone used in this study were supplied by Dr. Elmer Alpert of Merck & Company, Inc., Rahway, N. J. The desoxycorticosterone acetate was supplied by Ciba Pharmaceutical Products, Inc., Summit, N. J.

[1] Liddle, G. W.; Pechet, M. M., and Bartter, F. C.: Enhancement of Biological Activities of Corticosteroids by Substitution of Halogen Atoms in 9α Position, Science **120**: 496-497 (Sept. 24) 1954.

ASE 2.—The next case in which this compound was used that of a 19-year-old female with adrenogenital syndrome nifested by facial hirsutism and irregular menses. Urinary retion of 17-ketosteroids averaged 18.4 mg. in 24 hours and eased to 25.6 mg. after the intravenous administration of units of corticotropin over an 8 hour period. A dose of 3 mg. fludrocortisone acetate was given daily for four days, during



ig. 1.—Weight gain in patient (case 1) receiving fludrocortisone acetate -fluorohydrocortisone) therapy and increased urinary excretion of roids following corticotropin (ACTH) before and during medication a patient with anorexia nervosa.

ich time there was a persistent decrease in the urinary excre-n of 17-ketosteroids and 17-hydroxycorticoids (fig. 2). She was bsequently treated with 30 mg. of hydrocortisone daily and s resumed normal menses.

In this patient fludrocortisone acetate caused a defi-te decrease in the urinary excretion of 17-ketosteroids d 17-hydroxycorticoids, indicating its ability to in-bit the secretion of corticotropin from the pituitary.

CASE 3.—Fludrocortisone acetate was used in a 20-year-old male with an acute exacerbation of chronic recurrent choroid-s. In order to demonstrate the effect of this compound on dium, potassium, chloride, calcium, phosphorus, and nitrogen tabolism, the patient was placed on an isocaloric diet constant

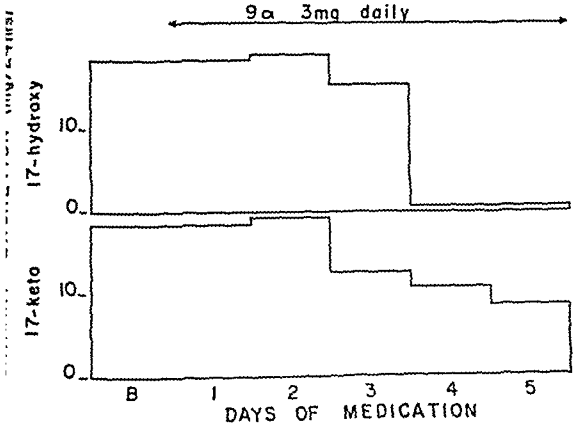


Fig. 2.—Urinary excretion of steroids in patient (case 2) showing de-ase of both 17-hydroxycorticoids and 17-ketosteroids while receiving drocortisone acetate (9-α-fluorohydrocortisone).

r these substances. Complete urine specimens and stool col-ctions were obtained. The therapy consisted of two three-day riods with 8 mg. of fludrocortisone acetate daily, one three-y period with 4 mg. daily, and initial and terminal three-day ntrol periods. Frequent evaluation showed progressive im-ovement of the choroiditis while the patient was receiving erapy. The results of the metabolic studies are shown in fig. 3.

In this patient an anti-inflammatory response to fludrocortisone acetate was observed similar to that which might have been expected from cortisone or hydrocortisone. Retention of sodium and chloride occurred as well as increased excretion of potassium. The catabolic effect of this compound was evidenced by loss of nitrogen, phosphorus, and calcium.

CASE 4.—A 52-year-old female with chronic rheumatoid arthritis treated with salicylates, cortisone, hydrocortisone, and phenylbutazone (Butazolidin) was evaluated for anemia of four months' duration that had been severe enough to require multiple blood transfusions. Because of the presence of splenomegaly, normochromic anemia, leukopenia with lymphocytosis, normal blood platelet counts, and a hyperplastic bone marrow, the diagnosis of Felty's syndrome was made. In order to determine the effect of fludrocortisone acetate on the joint inflammation and the hematological disorder as well as to obtain further information about the metabolic effects of the medicament, the patient was placed on an isocaloric diet constant for sodium, potassium, chloride, calcium, phosphorus, and nitrogen. Urine and stool determinations were obtained during the study period, and periodic blood studies and hematological evaluations were made. During a three day control period when all treatment was withheld, an acute exacerbation of the arthritis occurred. A dose of 12 mg. of fludrocortisone acetate was then given daily for three days. Within four hours of initiation of therapy, symptomatic relief occurred followed by disappearance of signs of active inflammation in the joints. During the following three day period, 6 mg. was insufficient to completely control the disease. Corticotropin, 25 units, intravenously over an eight hour period, was given for three days with complete remission again. During the studies no appreciable change in the hematological picture occurred. Results of the metabolic studies are shown in figure 4.

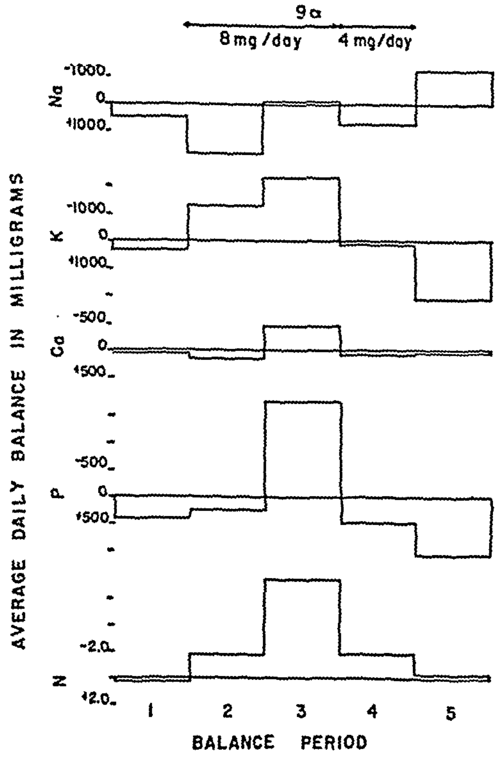


Fig. 3.—Metabolic balance study in patient (case 3) demonstrating retention of sodium and loss of potassium, calcium, phosphorus, and nitrogen while receiving fludrocortisone acetate (9-α-fluorohydrocortisone).

In this patient the anti-inflammatory effect of this compound in sufficient dosage was again demonstrated. Sodium and chloride retention was again shown, as was decreased retention of potassium. Both nitrogen and phosphorus were retained to a lesser extent while the patient was receiving medication than during the control period. Calcium loss, though delayed, was observed. This compound was used in two cases of adrenal surgery as complete replacement therapy.

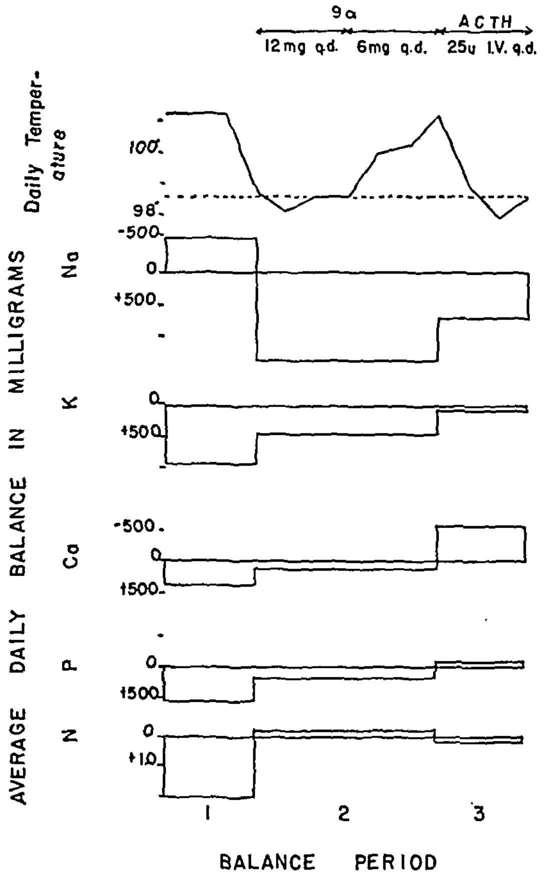


Fig. 4.—Metabolic balance study in patient (case 4) showing sodium retention; diminished retention of potassium, nitrogen, and phosphorus, and calcium loss while receiving fludrocortisone acetate (9-α-fluorohydrocortisone).

Case 5.—A subtotal adrenalectomy was performed on a 7-year-old boy who had developed adrenal cortical hyperfunction (Cushing's syndrome) confirmed by laboratory studies. During the day of surgery and each of the following two days 2 mg. of fludrocortisone acetate intravenously was sufficient to maintain the blood pressure and the serum electrolytes. This was the only substance used as replacement for the adrenal cortex. Whenever use of the medicament was temporarily stopped, hypotension resulted. A dose of 2 mg. daily was given orally for an additional 12 days before therapy was gradually discontinued.

Case 6.—A total bilateral adrenalectomy was performed as palliation on a 47-year-old woman who had diffuse metastases from breast carcinoma. No replacement therapy was given until one hour before the procedure, at which time 10 mg. of fludrocortisone acetate was given in an intravenous infusion of glucose in water. A dose of 5 mg. had been given by the time excision of the adrenals was completed, and a total of 15 mg. was given during the operative day. The blood pressure was maintained evenly throughout surgery and the postoperative period. She was subsequently given between 5 and 10 mg. of fludrocortisone acetate intravenously daily for five days, and for an additional week she was given 3 mg. orally before cortisone and desoxycorticosterone acetate were substituted. No complications of therapy were seen except on one occasion, when hypotension developed, resulting from a reaction to a blood transfusion. This was readily controlled by an additional 5 mg. of fludrocortisone acetate. Although prior to surgery urinary excretion of 17-hydroxycorticoids were in the normal range, after adrenalectomy none were found in the urine despite apparently adequate replacement therapy with fludrocortisone acetate.

Cases 5 and 6 illustrate the ability of fludrocortisone acetate to satisfactorily maintain adrenalectomized patients during the operative and postoperative periods. That this substance does not directly increase the urinary excretion of 17-hydroxycorticoids was shown by their absence in the urine in the patient in case 6 following adrenalectomy. Consequently, this compound may be used in the treatment of acute adrenal insufficiency without interfering with the diagnostic significance of urinary steroid excretion. Fludrocortisone acetate was used for six patients with adrenal cortical hypofunction (Addison's disease) in order to evaluate its potentiality as complete substitution therapy.

Case 7.—A 49-year-old female with known adrenal cortical hypofunction of two years' duration had been maintained on 10 mg. of cortisone and 10 mg. of desoxycorticosterone given sublingually. She was placed on a diet with sodium intake constant at 900 mg. and potassium 2,600 mg. After baseline urinary excretion of sodium, potassium, and chloride was determined, the patient was given 500 mg. of acetazolamide (Diamox) to induce adrenal insufficiency. Within 26 hours, weakness, emesis, tachycardia, and hypotension occurred and serum electrolytes were altered. A dose of 5 mg. of fludrocortisone acetate was then given intravenously in 5% glucose in water over four hours. Within two hours nausea was no longer present, and within five hours most of the symptoms had disappeared. Hourly urine studies, as shown in figure 5, indicated marked decrease in the sodium and chloride excretion as well as potassium diuresis. She was subsequently maintained free of symptoms with 3 mg. of the compound daily, but within 10 days had gained 12 lb. (5.4 kg.) of weight and was dyspneic. Medication was stopped

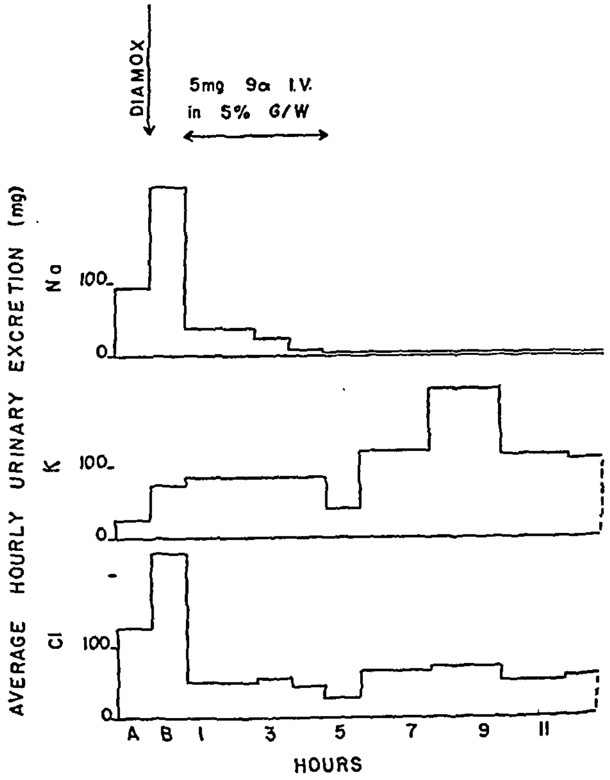


Fig. 5.—Urinary excretion of electrolytes in patient (case 7) showing increased excretion caused by acetazolamide (Diamox) (B) over average hourly excretion of control period (A) and promptly decreased sodium excretion as well as potassium diuresis following fludrocortisone acetate (9-α-fluorohydrocortisone).

for four days, during which time there was an 8 lb. (3.6 kg.) weight loss. She has subsequently been maintained on treatment with fludrocortisone acetate 0.5 mg. every third day and has felt better than on previous maintenance therapy.

Case 8.—A 50-year-old female with adrenal cortical hypofunction for three years had been adequately treated with cortisone 25 mg. daily and desoxycorticosterone pellets that had last been implanted 10 months previously. All medication was discontinued, and a constant 1,000 mg. sodium diet with 2,300 mg. of potassium was started. Within 48 hours, weakness, fatigue, nausea, and hypotension were present. A dose of 5 mg. of fludrocortisone acetate was then given intravenously in 5% glucose in water over four hours, and within four hours the patient had a symptomatic remission and the blood pressure had returned to normal values. Urinary excretion of sodium, potassium, and chloride was obtained before and after therapy and showed almost immediate marked decrease in sodium and chloride excretions as well as increased potassium excretion (fig. 6). Subsequently, 3 mg. was given daily with complete remission. However, within 12 days the patient gained 16 lb. (7.3 kg.), and mild respiratory distress was present. The cardiac diameter as determined by x-ray was increased 2 cm. Medication was stopped, sodium intake was limited, and a mercurial diuretic was given causing an 8 lb. (3.6 kg.) weight loss and relief of symptoms. After four days treatment was restarted with 0.5 mg. every second day on which she has been adequately maintained.

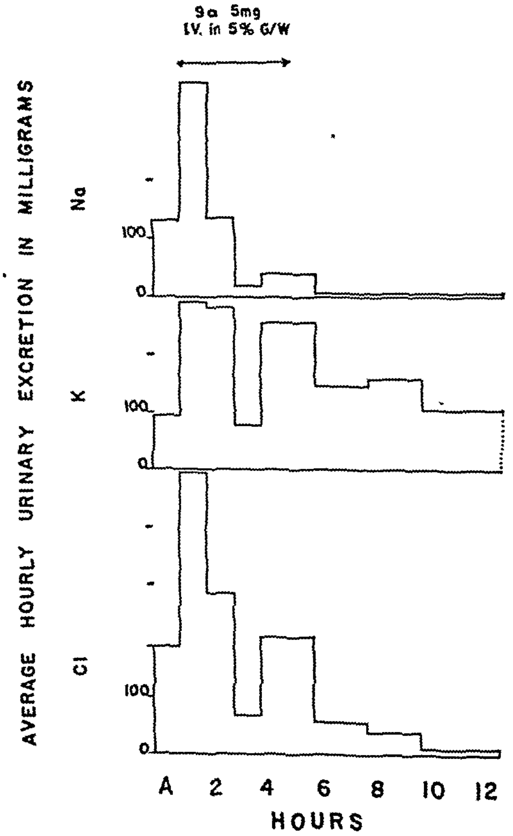


Fig. 6.—Urinary excretion of electrolytes in patient (case 8) showing decreased excretion of sodium and diuresis of potassium following fludrocortisone acetate (9-α-fluorohydrocortisone). Initial increased loss of electrolytes is thought to be due to initiation of the infusion.

In four additional cases of adrenal cortical hypofunction this compound has been successfully used as total replacement therapy. In all four patients medication was withheld until symptoms and signs of mild adrenal insufficiency were observed. Two patients were then given 2 mg., one was given 3 mg., and the other 5 mg. of fludrocortisone acetate intravenously and maintained on from 1 to 4 mg. orally for the first few days. In those cases receiving less than 5 mg. initially, the responses were not as dramatic as with larger amounts even though in two cases salt supplements orally were used. The patients have been successfully managed on 0.5 mg. every second or third day.

Because of its dual effect similar to that of both cortisone and desoxycorticosterone acetate, fludrocortisone acetate has been successfully used as total replacement therapy in six cases of adrenal cortical hypofunction. Marked immediate sodium retention was demonstrated in two cases in which urinary excretion was studied. Prolonged overtreatment produced symptoms of water retention. The average maintenance dose required after stabilization was 0.5 mg. every second to third day.

CONCLUSIONS

Fludrocortisone acetate (9-α-fluorohydrocortisone), evaluated in several clinical conditions in order to compare its effect with cortisone and desoxycorticosterone (Doca) acetate, was shown to have a cortisone-like effect averaging 15 to 20 times as great as hydrocortisone in its ability to: (1) inhibit the pituitary stimulation of the adrenal cortices; (2) produce loss of nitrogen, calcium, and phosphorus; (3) inhibit inflammation; and (4) produce a sense of well-being. Fludrocortisone acetate has an effect on mineral and water metabolism similar to desoxycorticosterone but averaging about five times as great as desoxycorticosterone in its ability to promote sodium, chloride, and water retention and potassium diuresis. Its greatest clinical usefulness will probably be in adrenal insufficiency or adrenal surgery where both desoxycorticosterone and cortisone effects are desirable. Its usefulness in conditions where cortisone or hydrocortisone alone has been beneficial will be limited by excessive sodium and water retention. Since its break-down products in the doses used do not appreciably affect the urinary steroid values, an additional advantage is its use in those cases of acute adrenal insufficiency in which treatment may be necessary before diagnostic studies can be performed.

Anticoagulant Therapy.—Major factors responsible for the misuse of anticoagulants include: (1) self-medication without prothrombin tests; (2) medication under physician's directions but without correct control; (3) administration of anticoagulants in the face of contraindications; (4) withholding of anticoagulant therapy in the presence of definite indications; (5) excessive dosage; and (6) inadequate dosage. Accumulated experience with these drugs has reduced the relative incidence of serious hemorrhage. Serious hemorrhage is rare in mild and moderately ill patients. The availability of vitamin K_1 has increased the safety. New coumarin and phenylindandione derivatives have been introduced for clinical use. . . . Their rate and duration of action vary, but their effectiveness depends fundamentally on their action on prothrombin. . . . The value of these drugs does not appear to be very different, and the facility with which the physician uses them probably constitutes the most important single factor in securing therapeutic results with safety. Heparin remains the only drug of its type suitable for clinical use. The so-called anticoagulants with enzymatic properties are thus far in an experimental phase and are not recommended for general use in man, pending much more comprehensive and critical evaluation.—I. S. Wright, M.D., Present Status of Anticoagulant Therapy in the Treatment of Myocardial Infarction, *Annals of Internal Medicine*, November, 1955.

THE POWERFUL PLACEBO

Henry K. Beecher, M.D., Boston

Placebos have doubtless been used for centuries by wise physicians as well as by quacks, but it is only recently that recognition of an enquiring kind has been given the clinical circumstance where the use of this tool is essential ". . . to distinguish pharmacological effects from the effects of suggestion, and . . . to obtain an unbiased assessment of the result of experiment." It is interesting that Pepper could say as recently as 10 years ago "apparently there has never been a paper published discussing [primarily] the important subject of the placebo." In 1953 Gaddum[1] said:

> Such tablets are sometimes called placebos, but it is better to call them dummies. According to the Shorter Oxford Dictionary the word placebo has been used since 1811 to mean a medicine given more to please than to benefit the patient. Dummy tablets are not particularly noted for the pleasure which they give to their recipients. One meaning of the word dummy is a "counterfeit object." This seems to me the right word to describe a form of treatment which is intended to have no effect and I follow those who use it. A placebo is something which is intended to act through a psychological mechanism. It is an aid to therapeutic suggestion, but the effect which it produces may be either psychological or physical. It may make the patient feel better without any obvious justification, or it may produce actual changes in such things as the gastric secretion. . . . Dummy tablets may, of course, act as placebos, but, if they do, they lose some of their value as dummy tablets. They have two real functions, one of which is to distinguish pharmacological effects from the effects of suggestion, and the other is to obtain an unbiased assessment of the result of experiment.

One may comment on Gaddum's remarks: Both "dummies" and placebos are the same pharmacologically inert substances; i. e., lactose, saline solution, starch. Since they appear to be differentiable chiefly in the reasons for which they are given and only at times distinguishable in terms of their effects, it seems simpler to use the one term, placebo, whose two principal functions are well stated in Professor Gaddum's last sentence quoted above. Finally, I do not understand how a dummy tablet could be prevented from having a psychological effect that, if pleasing, would make it a placebo. One term seems to fill the bill. If it falls a bit short of precision, perhaps the language will have to grow a little to include the new use.

To the increasingly well-recognized uses of the placebo I would add its use as a tool to get at certain fundamental mechanisms of the action of drugs, especially those designed to modify subjective responses. This use will be illustrated here. Strong evidence will be presented to support the view that several classes of drugs have an important part of their action on the reaction or processing component of suffering, as opposed to their effect on the original sensation.

The opportunities opened up by the placebo are unique, for it cannot possibly enter into any process by virtue of its chemical composition. It has, so to speak, neither the reactivity nor the physical dimensions required of an "effective" drug. It does not matter in the least what the placebo is made of or how much is used so long as it is not detected as a placebo by the subject or the observer. Thus the placebo provides an indispensable tool for study of the reaction or processing component of suffering. This will be referred to later on in this paper. I have discussed it extensively elsewhere.[2]

REASONS FOR USE

Reasons for the use of the placebo can be indicated by summarizing, then, its common purposes: as a psychological instrument in the therapy of certain ailments arising out of mental illness, as a resource of the harassed doctor in dealing with the neurotic patient, to determine the true effect of drugs apart from suggestion in experimental work, as a device for eliminating bias not only on the part of the patient but also, when used as an unknown, of the observer, and, finally, as a tool of importance in the study of the mechanisms of drug action. Moreover, as a consequence of the use of placebos, those who react to them in a positive way can be screened out to advantage under some circumstances and the focus sharpened on drug effects. For example, Jellinek (1946) in studying 199 patients with headache found that 79 never got relief from a placebo, whereas 120 did. His data for these numbers can be tabulated as follows: While differences between A, B and C do not emerge in the "mean success rate," it appears in the placebo-nonreactor group that A is definitely more effective than the other agents (table 1). He thus demonstrated (validated with statistical methods) that when the placebo reactors are screened out more useful differentiations can be made than otherwise is the case. Jellinek is not on such sure ground when he seems to dismiss the placebo reactors as those having "imagined pain, psychological headaches." From work on postoperative wound pain done by me and my associates it appears that placebos can relieve pain arising from physiological cause. (Certainly the reverse is true: psychological cause in promoting a flow of gastric juice can produce ulcer pain, etc.) This matter of the place of reaction to unpleasant sensory phenomena has been discussed elsewhere.[2]

We can take an example from our own work where placebos have relieved pain arising from physiological cause (surgical incision) and show how useful the screening out of placebo reactors can be. I, with Keats, Mosteller, and Lasagna,[3] in 1953, administered analgesics by mouth to patients having steady, severe postoperative wound pain, and we found that when we took all patients and all data we could not differentiate between

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From the Anesthesia Laboratory of the Harvard Medical School at the Massachusetts General Hospital.

Read before the Section on Surgery, General and Abdominal, at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 7, 1955.

1. Gaddum, J. H.: Walter Ernest Dixon Memorial Lecture: Clinical Pharmacology, Proc. Roy. Soc. Med. **47**: 195-204, 1954.

2. Beecher, H. K.: The Subjective Response and Reaction to Sensation: The Reaction Phase as the Site of Effective Drug Action, Am. J. Med., to be published.

3. Beecher, H. K.; Keats, A. S.; Mosteller, F., and Lasagna, L.: The Effectiveness of Oral Analgesics (Morphine, Codeine, Acetylsalicylic Acid) and the Problem of Placebo "Reactors" and "Non-Reactors," J. Pharmacol. & Exper. Therap. **109**: 393-400, 1953.

certain combined acetylsalicylic acid data and narcotic (morphine and codeine) data; however, when we screened out the placebo reactors, a sharp differential emerged in favor of the acetylsalicylic acid administered orally as opposed to the narcotics administered orally. Observations of this kind were enough to give us an interest in the placebo reactor as such. We made a study of him and of the placebo response [4] in 1954 in a group of 162 patients having steady, severe postoperative wound pain. We found that there were no differences in sex ratios or in intelligence between reactors and nonreactors. There are however significant differences in attitudes, habits, educational background, and personality structure between consistent reactors and nonreactors. These have been described in the report of this study.[4] (There was a significantly higher incidence of relief from morphine in the placebo reactors than in the nonreactors.)

Lasagna, Mosteller, von Felsinger, and I [4] found in a study of severe postoperative wound pain that the number of placebo doses was correlated highly with the total number of doses of all kinds. Fifteen patients with one placebo dose showed 53% relief from the placebo; 21 patients with two placebo doses got 40% relief from the placebo; in 15 patients with three placebo doses 40% gave relief; and of 15 patients with four or more placebo doses 15% gave relief. There was a significant correlation between number of doses and percentage relief. This same study gave an opportunity to examine the consistency of the placebo response. Sixty-nine patients received two or more doses of a placebo. Fifty-five per cent (38 patients) of these behaved inconsistently, that is to say, sometimes the placebo produced relief and sometimes not. Fourteen per cent (10 patients) were consistent reactors, that is, all placebo doses were effective. Thirty-one per cent (21 patients) were consistent nonreactors; the placebo doses were never effective. It is impossible to predict the efficacy of subsequent placebos from the response to the initial dose of saline. It must not be supposed that the action of placebos is limited to "psychological" responses. Many examples could be given of "physiological" change, objective change, produced by placebos. Data on this will be presented below.

MAGNITUDE OF THE THERAPEUTIC EFFECT OF PLACEBOS

Notwithstanding the keen interest of a number of individuals in placebo reactors and the placebo response, there is too little scientific as well as clinical appreciation of how important unawareness of these placebo effects can be and how devastating to experimental studies as well as to sound clinical judgment lack of attention to them can be. This problem exists in many laboratories and in many fields of therapy. Its size and pervasiveness can best be illustrated by quantitative data from the studies of others as well as our own. Fifteen illustrative studies have been chosen at random (doubtless many more could have been included) and are shown in table 2. These are not a selected group: all studies examined that presented adequate data have been included. Thus in 15 studies (7 of our own, 8 of others) involving 1,082 patients, placebos are found to have an average significant effectiveness of 35.2±2.2%, a degree not widely recognized. The great power of placebos provides one of the strongest supports for the view that drugs that are capable of altering subjective responses and symptoms and do so to an important degree through their effect on the reaction component of suffering.[2]

TOXIC AND OTHER SUBJECTIVE SIDE-EFFECTS OF PLACEBOS

Not only do placebos produce beneficial results, but like other therapeutic agents they have associated toxic effects. In a consideration of 35 different toxic effects of placebos that we had observed in one or more of our studies, there is a sizable incidence of effect attributable to the placebo as follows: dry mouth, 7 subjects out of 77, or 9%; nausea, 9 subjects out of 92, or 10%; sensation of heaviness, 14 subjects out of 77, or 18%; headache, 23 subjects out of 92, or 25%; difficulty concentrating, 14 subjects out of 92, or 15%; drowsiness, 36 subjects out of 72, or 50%; warm glow, 6 subjects out of 77, or 8%; relaxation, 5 subjects out of 57, or 9%; fatigue, 10 subjects out of 57, or 18%; sleep, 7 subjects out of 72, or 10%. The effects mentioned were recorded as definite but without the subject's or observer's knowledge that only a placebo had been administered.

TABLE 1.—*Percentage of Relief from Placebo in 199 Patients with Headaches*

Agent	Effective Mean Success Rate, %	Effectiveness in Placebo-Nonreactor Group, %	Effectiveness in Placebo-Reactor Group, %
	(199)	(79)	(120)
A	81	88	82
B	80	67	87
C	80	77	82
Placebo	52	0	..

Wolf and Pinsky [5] reported in 1954 on an interesting study of placebos and their associated toxic reactions. They found, in studying a supposedly effective drug and a placebo (lactose) in patients with anxiety and tension as prominent complaints, that these symptoms were made better in about 30% of 31 patients. It is interesting to observe that the improvement rate was greater on the subjective side as just given than it was when objective signs of anxiety such as tremulousness, sweating, and tachycardia were considered. In this case (objective signs) about 17% were made better.

In these patients of Wolf and Pinsky there were various minor complaints, but 3 of the 31 patients had major reactions to the placebo: one promptly had overwhelming weakness, palpitation, and nausea both after taking the placebo and also after the tested (therapeutically ineffective) drug. A diffuse rash—itchy, erythematous, and maculopapular—developed in a second patient after the placebo. It was diagnosed by a skin consultant as dermatitis medicamentosa. The rash quickly cleared after the placebo administration was stopped. Since the

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4. Lasagna, L.; Masteller, F.; von Felsinger, J. M., and Beecher, H. K.: A Study of the Placebo Response, Am. J. Med. 16:770-779, 1954.

5. Wolf, S., and Pinsky, R. H.: Effects of Placebo Administration and Occurrence of Toxic Reactions, J. A. M. A. 155:339-341 (May 22) 1954.

placebo was a small quantity of lactose taken orally, it is hardly possible that it could have produced a real dermatitis. In a third patient, within 10 minutes after taking her pills, epigastric pain followed by watery diarrhea, urticaria, and angioneurotic edema of the lips developed. These signs and symptoms occurred twice more after she received the pills and again when the batch of pills was shifted; thus she had the reaction after both the (therapeutically ineffective) drug as well as after the placebo. These powerful placebo effects are objective evidence that the reaction phase [2] of suffering can produce gross physical change.

OBJECTIVE EFFECTS OF PLACEBOS

Abbot, Mack, and Wolf [6] found in 13 experiments with placebos on a subject with a gastric fistula that the gastric acid level decreased in eight experiments, increased in two, and was unchanged in three. Whereas, in a second group of 13 experiments with no agent used, the gastric acid level increased in one case, decreased in 4, and remained the same in 8. The gastric acid level fell apparently about twice as often when a placebo was used as when no agent was administered. In the section above on toxic effects, reference was made to the patients of Wolf and Pinsky [5] who developed objective toxic signs following placebo administration: palpitation, erythematous rash, watery diarrhea, urticaria, angioneurotic edema. Wolf [7] has pointed out ". . . 'placebo effects' include objective changes at the end organ which may exceed those attributable to potent pharmacologic action."

During work with narcotics, Keats and I observed that 7 subjects out of 15, or 47%, were recorded as having constricted pupils, believed at the time (using "unknowns" technique) to be a drug effect, although later it was found that a placebo had been used. Even though this observed effect possibly might not have been related to the placebo administration in this case, it illustrates the kind of error that can get into uncontrolled drug experiments.

Cleghorn, Graham, Campbell, Rublee, Elliott, and Saffran studied the adrenal cortex in psychoneurotic patients where anxiety requiring hospitalization was the most prominent feature. They found that a placebo (isotonic sodium chloride) injection produced a response in patients with severe anxiety similar to that given by corticotropin (ACTH) in normal patients. (As criteria of adrenal cortical activity they used the following indexes: increase in circulating neutrophils, decrease in lymphocytes, decrease in eosinophils, increase in the ratio of uric acid to creatinine. And more recently they

TABLE 2.—*Therapeutic Effectiveness of Placebos in Several Conditions*

Condition	Study	Placebo					
		Agent	Route *		Patients, No.	% Satisfactorily Relieved by a Placebo	
Severe post-operative wound pain	Keats, A. S., and Beecher, H. K.: J. Pharmacol. & Exper. Therap. 100: 1-13, 1950	Saline	I. V.		118	21	
	Beecher, H. K., and others: U. S. Armed Forces M. J. 2: 1269-1276, 1951	Saline	S. C.		29	31	
	Keats, A. S., and others: J. A. M. A. 147: 1761-1763 (Dec. 29) 1951	Saline	I. V.		34	26	
	Beecher and others (1953) [3]	Lactose	P. O.		52	40	33
					36	26	
					44	34	
					40	32	
	Lasagna and others (1954) [4]	Saline	S. C.		14	50	39
					20	37	
					15	53	
					21	40	
					15	40	
					15	15	
Cough	Gravenstein, J. S., and others: J. Appl. Physiol. 7: 119-139, 1954	Lactose	P. O.		22	36	40
					22	43	
Drug-induced mood changes	Lasagna, L., and others: J. A. M. A. 157: 1006-1020 (March 19) 1955	Isotonic sodium chloride	S. C.	Normal	20	30	
				"Post-addicts"	30	30	
Pain from angina pectoris	Evans, W., and Hoyle, C.: Quart. J. Med. 2: 311-338, 1933	Sodium bicarbonate	P. O.		[illegible]	38	
	Travell, J., and others: Ann. New York Acad. Sc. 52: 345-353, 1949	"Placebo"	P. O.		19	26	
	Greiner, T., and others: Am. J. Med. 9: 143-155, 1950	Lactose	P. O.		27	38	
Headache	Jellinek (1946)	Lactose	P. O.		199	52	
Seasickness	Gay and Carliner (1949)	Lactose	P. O.		33	58	
Anxiety and tension	Wolf and Pinsky (1954) [5]	Lactose	P. O.		31	30	
Experimental cough	Hillis (1952)	Isotonic sodium chloride	S. C.	Many experiments	1	37	
Common cold	Diehl, H. S.: J. A. M. A. 101: 2042-2049 (Dec. 23) 1933	Lactose	P. O.	Cold acute	110	35	
				Subacute chronic	48	35	
				Total patients	1,082	Average relieved 35.2 ± 2.2%	

* I. V., intravenous; S. C., subcutaneous; P. O., oral

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6. Abbot, F. K.; Mack, M., and Wolf, S.: The Action of Banthine on the Stomach and Duodenum of Man with Observations on the Effects of Placebos, Gastroenterology 20: 249-261, 1952.
7. Wolf, S.: Effects of Suggestion and Conditioning on the Action of Chemical Agents in Human Subjects—the Pharmacology of Placebos, J. Clin. Invest. 29: 100-109, 1950.

have added: potassium, sodium, 17-ketosteroids, and neutral reducing lipids determinations.) The amount of change was recorded in several types of experiments on normals (labeled O) as well as on patients. The patients have been divided arbitrarily into three categories, mild effect (labeled ½), moderate (labeled 1), marked (labeled 2) and the numerical range limits for these groups set down. The label numbers in a given case were added together to give a composite index of adrenal cortical activity. Normal subjects who received a small dose of corticotropin always reacted more than the ½ class; class 1 was the range of change never observed in normal controls but was common in stress and with corticotropin; class 2 presented a degree of change that was unusual for doses of corticotropin not exceeding 25 units. The response increased with the dose of corticotropin. Twenty-five of the subjects received a saline placebo injection. From the data it is evident that the patients with the severest anxiety states have a greater disturbance of their adrenal cortical activity by the placebo than is true of patients with less anxiety.

These objective changes show that placebos can set off the adrenals and mimic drug action. They also show that the severer the disease state the greater is their effect. (This is in line with our long-standing thesis that, for sound information concerning the effectiveness of certain drugs designed to alter subjective responses ordinarily arising in disease, it is sounder than otherwise to go to the pathological situation for answers as to drug effectiveness.)

In work in progress I have found strong evidence that placebos are far more effective in relieving a stressful situation (early postoperative wound pain) when the stress is severe than when it is less so. Thus subjective and objective (Cleghorn and others) data both support the view of a differential effectiveness of placebos.

COMMENT

An interesting discussion of the use of the placebo in therapy was presented by Gold and others in one of the Cornell Conferences on Therapy in 1946.[8] Gold was one of the very earliest investigators to understand the use and significance and importance of the placebo. Not enough attention has been given to his sensible comments over the years. At this particular conference, DuBois commented that, although scarcely mentioned in the literature, placebos are more used than any other class of drugs. He objected to the definition of a placebo as an agent designed to pacify rather than to benefit and held, reasonably enough, that to pacify is to benefit. DuBois recalled that Fantus claimed that the lower the intelligence of the patient the more he is benefited by a placebo. Gold strongly disagreed and provided support for his disagreement. We agree with Gold on the basis of our own evidence.[4] Wolff pointed out that the placebo as a symbol of the doctor says in effect "I will take care of you." Diethelm suggested that the person reacts to suggestion because what is suggested becomes to him reality. He believes it and consequently the expected result occurs. (In believing, the expected reaction takes place.) Gold made a strong plea for "pure" placebos; i. e., placebos that do not contain any element that could conceivably have a direct effect on the body's cells, otherwise the physician is likely to deceive himself. He comes to believe that these unlikely agents are nevertheless, by virtue of the specific drug included, effective, when really all the power they have is as a placebo.

In studies of severe, steady postoperative wound pain extending over a considerable number of years we have found that rather constantly 30% or more of these individuals get satisfactory pain relief from a placebo. The effectiveness of a placebo does vary in this work as shown in table 2, from one group to another, but is always at an impressively high level, generally above the 30% mentioned. Certainly in these and the other studies shown in table 2 the validity of the thesis presented here (namely, that the placebo can have powerful therapeutic effect) hinges largely on the definition of "satisfactory relief." In each study referred to this has been carefully defined. For example, in our pain work satisfactory relief is defined as "50 per cent or more relief of pain" at two checked intervals, 45 and 90 minutes after administration of the agent. (This is a reproducible judgment patients find easy to make.) Each author has been explicit, and some have required even greater success than indicated above. For example, Gay and Carliner (1949) required, for a positive effect, complete relief of seasickness within 30 minutes of administration of the placebo. The important point here is that in each of these representative studies, patients and observers alike, working with unknowns (usually "double blind" technique) have concluded that a real therapeutic effect has occurred. The implication of this for an uncontrolled study is clear.

The constancy of the placebo effect (35.2 ± 2.2%) as indicated by the small standard error of the mean in a fairly wide variety of conditions, including pain, nausea, and mood changes, suggests that a fundamental mechanism in common is operating in these several cases, one that surely deserves further study.

With placebos having an average high effectiveness of 35% (table 2) in the variety of conditions dealt with here, it should be apparent that "clinical impression" is hardly a dependable source of information without the essential safeguards of the double unknowns technique, the use of placebos also as unknowns, randomization of administration, the use of correlated data (all agents are studied in the same patients), and mathematical validation of any supposed differences. These safeguards are essential when matters of judgment enter into decision. Many "effective" drugs have power only a little greater than that of a placebo. To separate out even fairly great true effects above those of a placebo is manifestly difficult to impossible on the basis of clinical impression. Many a drug has been extolled on the basis of clinical impression when the only power it had was that of a placebo.

Not only does the use (and study) of placebos offer much of practical value, but it is important to recognize that use of this tool promises to give access to an understanding of certain basic problems of mechanism of action of narcotics and other agents that modify subjective responses. A detailed discussion has been given elsewhere [2] *of the two phases of suffering: the original pain* sensation, for example, and then the reaction to it or the processing of it by the central nervous system. The evidence for the importance of the reaction phase as the site of drug action has been assembled,[2] and in that account the effectiveness of placebos stands as one of the principal supports of the concept. We can learn still more from placebos along this line. Consider the following statement: If, against all of the evidence to the contrary, one were to hold the view that the placebo is a feeble or useless therapeutic agent, then the placebo should appear most effective when the test condition is mild and less effective when pitted against severe conditions. There are two kinds of evidence, subjective and objective, referred to above, that just the opposite is the case: placebos are most effective when the stress (anxiety or pain, for example) is greatest.

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[8] Wolff, H. G.; DuBois, E. F., and Gold, H., in Cornell Conferences on Therapy: Use of Placebos in Therapy, New York J. Med. 46: 1718-1727, 1946.

Two other views fit well with these findings. For some years we have held to the working hypothesis that subjective responses must be studied in man where they arise in pathology, that they cannot be usefully contrived experimentally in man. There is considerable factual evidence to support this view.[2] We believe the reason for this is that in pathology the significance, the reaction, is greatest and of a kind and degree that cannot adequately be produced experimentally. Where the significance is greatest, one can expect the greatest reaction, the greatest (more extensive) processing of the original sensations, and, in a parallel way, the greatest response to therapy both of "active" drugs (like morphine) and of placebos insofar as they act on the reaction phase. This may explain why morphine fails to block the experimental pain of the Hardy-Wolff procedures.[2] The greater effectiveness of the placebo where the stress and reaction are greatest, taking into account that the placebo can only act on the reaction facet, supports the view that placebos being chiefly effective as indicated when there is great significance, great reaction, do indeed act by altering the reaction.

Placebos provide an opportunity for attacking problems not possible of study with specifically effective drugs (like morphine on pain), since with these drugs one can never be sure that the original sensation was not altered by drug action. The placebo effect of active drugs is masked by their active effects. The power attributed to morphine is then presumably a placebo effect plus its drug effect. The total "drug" effect is equal to its "active" effect plus its placebo effect: 75% of a group in severe postoperative pain are satisfactorily relieved by a large dose of morphine (15 mg. of the salt per 70 kg. of body weight), but 35% are relieved by the placebo.

SUMMARY AND CONCLUSIONS

It is evident that placebos have a high degree of therapeutic effectiveness in treating subjective responses, decided improvement, interpreted under the unknowns technique as a real therapeutic effect, being produced in 35.2 ± 2.2% of cases. This is shown in over 1,000 patients in 15 studies covering a wide variety of areas: wound pain, the pain of angina pectoris, headache, nausea, phenomena related to cough and to drug-induced mood changes, anxiety and tension, and finally the common cold, a wide spread of human ailments where subjective factors enter. The relative constancy of the placebo effect over a fairly wide assortment of subjective responses suggests that a fundamental mechanism in common is operating, one that deserves more study. The evidence is that placebos are most effective when the stress is greatest. This supports the concept of the reaction phase as an important site of drug action.

Placebos have not only remarkable therapeutic power but also toxic effects. These are both subjective and objective. The reaction (psychological) component of suffering has power to produce gross physical change. It is plain not only that therapeutic power of a drug under study must in most cases be hedged about by the controls described below but also that studies of side-effects must be subjected to the same controls.

When subjective responses, symptoms, are under study, it is apparent that the high order of effectiveness of placebos must be recognized. Clearly, arbitrary criteria of effectiveness of a drug must be set up. Preservation of sound judgment both in the laboratory and in the clinic requires the use of the "double blind" technique, where neither the subject nor the observer is aware of what agent was used or indeed when it was used. This latter requirement is made possible by the insertion of a placebo, also as an unknown, into the plan of study. A standard of reference should be employed for comparison with new agents or techniques. Randomization of administration of the agents tested is important. The use of correlated data (the agents compared are tested in the same patients) is essential if modest numbers are to be worked with. Mathematical validation of observed difference is often necessary. Whenever judgment is a component of appraisal of a drug or a technique, and this is often the case, conscious or unconscious bias must be eliminated by the procedures just mentioned. These requirements have been discussed in detail elsewhere.[9]

[9] Beecher, H. K.: Appraisal of Drugs Intended to Alter Subjective Responses, Symptoms, report to Council on Pharmacy and Chemistry, J. A. M. A. : 399-401 (June 4) 1955.

Machine Age Overtakes Medicine.—As year succeeds year, some new physical or chemical technic and some new and elaborate machine are applied to the study of disease; great claims are always made for the precision of the answers yielded by these technics and machines. One of the greatest struggles that a practicing doctor has is to keep up-to-date with advances of this kind. No sooner has he mastered one than another is upon him. Moreover, the machines or technics are often so complex that he cannot understand them. He has to take what they tell him on trust. . . . There is a growing tendency for doctors to rely on the information given by such technics and machines in preference to the information which they gain themselves from the history and physical signs. I am extremely doubtful if this is in the interests of good doctoring, and for three reasons. First, the errors and limitations of these new technics are not at first appreciated. . . . Second, a thorough clinical examination, which will be carried out only by doctors who appreciate its worth, is the best method of establishing that spirit of mutual understanding and good will which is the core of the doctor-pationt relationship. Finally, to rely on data, the nature of which one does not understand, is the first step in losing intellectual honesty. The doctor is particularly vulnerable to a loss of this kind, since so much of therapeutics is based on suggestion. And the loss naturally leaves him and his patients the poorer.—G. W. Pickering, M.D., Disorders of Contemporary Society and Their Impact on Medicine, *Annals of Internal Medicine*, November, 1955.

ROLE OF PEDIATRICIAN AND HOSPITAL IN CARE OF ORTHOPEDICALLY HANDICAPPED CHILD

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Medical progress of the past few decades has drastically changed the scope of many specialties, including pediatrics. With the conquest of infectious and nutritional diseases the major problems of child health remain in the fields of health supervision, chronic illness, and "mental health." The field of chronic illness is a broad one including musculoskeletal disabilities, rheumatic fever and heart disease, hearing and speech, convulsive disorders, congenital malformation of all types, visual defects, mental retardation, and emotional disturbance. The pediatrician's potential contribution to the care of these youngsters is unlimited. In urban areas it is usually the pediatrician who sees many of these children in the hospital newborn infant nurseries. From then on he shares with the family the responsibility for the child's development in health and disease. In view of the huge potential role that the pediatrician might play in the care of children with chronic illness, it is surprising how little he does participate. This report describes the functioning of the pediatrician in the hospital care of orthopedically handicapped children in a large urban area. It raises the question as to why his role has been a minor one and suggests means by which this all important component of handicapped children's care can be greatly strengthened.

BACKGROUND

The Bureau for Handicapped Children of the New York City Department of Health (through the state-aid Medical Rehabilitation Program) since 1945 has provided payment for hospital, convalescent, and rehabilitation care for handicapped children under the age of 21 years. Approximately $1,500,000 was expended from July 1, 1953, to July 1, 1954, for the care of orthopedic, congenital cardiac, visual, cleft palate, drug addiction, orthodontic, plastic surgical, and certain pediatric conditions. Since 1951, the bureau has attempted to evaluate the quality of care given to the children under the program and to work with the participating institutions toward the improvement of such care. The Hospital Consultation Program of the bureau has functioned through a periodic survey of hospital and convalescent services. In the orthopedic field, surveys of 25 children's hospital orthopedic services have been made by a team composed of an orthopedic surgeon, physiatrist, pediatrician, hospital nursing consultant, and medical social worker. Survey findings have been presented to the Orthopedic Advisory Committee composed of 15 leaders in the fields of orthopedic surgery, physiatry, pediatrics, nursing, social work, hospital administration, and vocational rehabilitation. Based on standards developed by the advisory committee, letters of recommendations have been sent to the corresponding key members of the staff of each hospital and a postsurvey conference has been held at the hospital with the same key personnel to discuss the findings and recommendations. The following data represent the pertinent pediatric findings noted as the results of the survey of 25 children's hospital orthopedic services. Of the 25 hospitals, 15 are general hospitals, 6 are specialty hospitals devoted predominantly or exclusively to the care of orthopedic patients, 2 are chronic disease hospitals, and 2 are communicable disease hospitals.

SURVEY FINDINGS

Approval for Residency Training.—Of the 25 hospitals, 15 general hospitals (60%) have full approval by the Council on Medical Education and Hospitals of the American Medical Association for training in pediatrics, and 2 communicable disease hospitals (8%) are approved for a six month period only. Eight hospitals (32%) are not approved; this group is composed of six specialty hospitals and two general hospitals. The important finding is that 68% of the hospitals have some degree of approval for pediatric residency training, and the potential opportunity for pediatric participation in the care of these children is considerable. In the orthopedic surgical field, 17 of the 25 hospitals (68%) have some degree of approval for orthopedic training, of which 12 hospitals (48%) have full three year approval. In the field of physical medicine and rehabilitation, 8 of the 25 hospitals (32%) have approval for the training of residents in physiatry (table 1).

Provision of Qualified Chiefs of Services.—Only 8 (32%) of the 25 hospitals had qualified chiefs of the orthopedic, pediatric, and physical medicine and rehabilitation services who were actively supervising the services. Of the 25 hospitals, 12 had qualified chiefs of orthopedic and pediatric services; 2 had qualified chiefs of orthopedic and physical medicine and rehabilitation services; one had chiefs in pediatric and physical medicine and rehabilitation services; one had a chief in pediatrics only; and one had a chief in physical medicine and rehabilitation only. The opportunity for pediatric participation is again demonstrated by the fact that 22 of the 25 hospitals (88%) had a qualified pediatrician in charge of the pediatric care. Twenty-two hospitals (88%) had a qualified orthopedic surgeon in charge of the orthopedic care. Twelve hospitals (48%) had a qualified physiatrist in charge of the physical medicine and rehabilitation care.

Provision of Resident Staff.—Only 4 of the 25 hospitals (16%) had available resident staff from the three essential services of orthopedic surgery, pediatrics, and physical medicine and rehabilitation; 5 had residents in orthopedics and pediatrics; one had residents in orthopedics and physical medicine and rehabilitation; 3 had

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From the Bureau for Handicapped Children, New York City Department of Health.

Read before the Section on Pediatrics at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

residents in orthopedics only; 6 in pediatrics only; one in physical medicine and rehabilitation only; 2 in general surgery and pediatrics; 2 in general surgery only; and one had none. Thus, 17 hospitals (68%) had pediatric residents, 13 (52%) had orthopedic residents, and 6 (24%) had residents in physical medicine and rehabilitation. The pediatric specialty had the greatest frequency of resident staff available for the care of these children.

Census.—At the time of the survey, 3 of the 25 hospitals had no orthopedic patients in the age group from birth to 21 years, 7 had 1 to 5, 2 had 6 to 10, 2 had 11 to 15, one had 16 to 20, one had 21 to 25, 3 had 26 to 30, 2 had 31 to 40, 2 had 41 to 50, one had 51 to 60, and one had over 60. A total of 12 hospitals had 10 or less and 15 hospitals had 20 or less. These surveys were usually made during the period from September through June. Usually no surveys are made during July and August due to the vacation of the hospital staffs. This finding of low patient census in many hospitals is a significant one, which will be discussed later.

Admission Procedure.—In no hospital did all three essential team members, namely the orthopedic, pediatric, and physical medicine and rehabilitation residents see the children together or separately on admission to the inpatient service. The predominant pattern, found in nine hospitals, was for the orthopedic resident alone to see the child; in five hospitals they were seen by the surgical resident only, in four by the orthopedic and pediatric residents, in two by the pediatric resident only, in two the younger children (to age 2) by the pediatric resident and the older ones by the surgical resident, in one by the orthopedic and pediatric (part-time) coordinators, in one by the surgical and pediatric residents, and in one by the physiatrist, psychologist, social worker, nurse, and physical and occupational therapists. Thus the pediatric resident participated in the admission evaluation of all children in seven hospitals. In only one hospital was there use of the nonmedical members of the team in the admission evaluation of children; in this instance neither the pediatrician nor the orthopedist participated in the admission evaluation.

TABLE 1.—*Residency Training Program Approvals*

Status of Approval	Orthopedic Surgery	Physical Medicine and Rehabilitation	Pediatrics
3 yr.	12	8	..
2 yr.	3	..	15
1½ yr.	1	..	..
1 yr.	1	..	..
6 mo.	..	..	2
Unapproved	8	17	8
Total	25	25	25

Extent of Medical Supervision.—The extent of medical supervision can be seen in the frequency and pattern of rounds and in the frequency of and attendance at staff conferences.

Frequency of Medical Rounds: Of the 25 hospitals surveyed, daily rounds were made by orthopedists in 12, by pediatricians in 7, and by physiatrists in 2; in 21 hospitals there was a regular plan for orthopedic supervision; in only 12 was there a regular plan for pediatric supervision; in 7 other hospitals the pediatric staff was used on a consultation basis but was rarely called in for consultation. In only five hospitals was there a regular plan for supervision by the physical medicine and rehabilitation staff (table 2).

Pattern of Medical Rounds: The predominant pattern found was for the orthopedic medical staff to make rounds alone (15 hospitals); in 2 hospitals rounds were made jointly by orthopedists, pediatricians, social service workers, and nurses; in 2 by physiatrists, pediatricians, nurses, and physical therapists; in one by orthopedists and social service workers; in one by orthopedists, social service workers, and nurses; in one by orthopedists and nurses; in one by the pediatric staff alone; in one by the physiatric staff alone; and in one by a team comprised of orthopedist, physiatrist, social worker, nurse, and physical therapist. In five hospitals, the pediatricians attended or participated in rounds either separately or with other members of the medical or nonmedical team. In no hospital did all members of the medical team of the pediatrician, the orthopedist, and the physiatrist make rounds together.

TABLE 2.—*Frequency of Medical Rounds*

Frequency	Orthopedists	Pediatricians	Physiatrists
Daily	12	7	2
4 times weekly	..	1	..
2 times weekly	1	..	..
1 time weekly	8	4	3
Consultation only	3	7	1
"Irregular"	..	1	2
"Rarely"	..	..	1
None	1	3	16
Unknown	..	2	..
Totals	25	25	25

Frequency of Staff Conferences: Weekly orthopedic staff conferences were held in 17 hospitals, 3 hospitals held them once a month, and 5 hospitals either had no staff conferences or held them at infrequent or sporadic intervals. (One held them quarterly, one held them occasionally, and 3 had none.)

TABLE 3.—*Attendance at Staff Conferences on Orthopedic Cases*

Participating Personnel	No. of Hospitals
Orthopedic staff only	12
Orthopedic, nursing, physical therapy	1
Orthopedic, nursing, physical therapy, social service	1
Orthopedic, physiatric, nursing	1
Orthopedic, physiatric, nursing, radiological	1
Orthopedic, physiatric, nursing, social service, physical therapy.	1
Orthopedic, pediatric, physical therapy, nursing, social service.	1
Orthopedic, pediatric, physical therapy	1
Orthopedic, nursing, social service, physical and occupational therapy	1
Physiatric; pediatrician; nursing; social service; psychologist; physical, occupational, and speech therapists; teacher	1
Physiatric, physical therapist	1
None	3
Total	25

Attendance at Staff Conferences: The predominant pattern was for the orthopedic staff to hold their conferences alone (12 hospitals). In no hospital was there a plan for a regular joint conference of the three essential medical services. In only three hospitals did a member of the pediatric staff attend and participate in orthopedic staff conferences (table 3).

Essential Ancillary Personnel and Services.—Thirteen hospitals had a nursing supervisor assigned to the service caring for orthopedically handicapped children. Of these, there were two had nursing supervisors with special training in orthopedic nursing and two with special training in pediatric nursing. Only four hospitals had a policy for usually referring orthopedically handicapped children at the time of discharge to the community public health nursing agencies for home follow-up and supervision. Fifteen hospitals had an organized department of physical medicine and rehabilitation, 7 of which had a separate rehabilitation ward provided and 8 of which provided a separate rehabilitation outpatient department. Twenty-two hospitals had at least one full-time physical therapist on the staff. Only three hospitals employed only qualified physical therapists. Thirteen hospitals had at least one full-time occupational therapist, and 10 hospitals had at least one full-time speech therapist. Fourteen of the 25 hospitals had a qualified director of the nutrition or dietetic department. All but two hospitals had a laboratory service for routine laboratory work, and a qualified medical director of the laboratory service. Fourteen of the 25 hospitals had a blood bank. All but two hospitals had a radiology department, and a qualified radiologist in charge of the department. Fifteen of the 25 hospitals are approved by the Council on Medical Education and Hospitals for residency training in radiology.

Fifteen of the 25 hospitals had a qualified medical anesthetist as director of the anesthesia department, and 11 hospitals had an approved residency training program in anesthesiology. In only eight hospitals was anesthesia administered to orthopedically handicapped children routinely by qualified medical anesthetists. Fourteen of the 25 hospitals had a qualified director of the social service department. Four hospitals had no social service department at all. In only three hospitals was there total social service review and coverage of all orthopedically handicapped children admitted to the inpatient service. In at least nine hospitals, social service data were not incorporated into the patient's individual chart or record. Eighteen hospitals had a teacher provided for continuing the education of the children during the period of hospitalization. Seventeen hospitals had at least one full-time psychologist on the staff. Only four hospitals had a recreation worker on the staff. Only three hospitals had a vocational counselor on the staff. Eight other hospitals had some plan established for referral of teen-age orthopedically handicapped patients to the community vocational guidance agencies. Fourteen hospitals had no such staff or plan. In regard to dental care, 14 hospitals had a service that did extractions only; one additional hospital performed fillings and extractions and one additional hospital had a more complete service including orthodontia care.

Visiting Hours.—All hospitals, where the information was collected, had designated visiting hours at least once a week. Only six hospitals allowed parents to visit daily; three allowed visits four times weekly, five allowed visits three times weekly, six allowed them twice weekly, and two allowed them once a week.

Records.—Of the 22 hospitals with an orthopedic outpatient service, 6 had a unit system of records whereby some continuity of care was provided by incorporation of outpatient records and inpatient charts into a single record. A review of inpatient records in the hospitals revealed in most instances that there was no pediatric admission examination. Pediatric progress notes were in general either absent or brief. In addition to the sparse pediatric notes, other areas of recording requiring strengthening were general progress notes, recording of preoperative surgical evaluation, description of the surgical procedures, physiatric and physical therapy progress notes, social service information, discharge notes, and plan for ongoing supervision.

Outpatient Care.—By the nature of the specialty, most orthopedically handicapped children are treated on an outpatient care basis and only a small percentage require hospitalization. The outpatient department therefore provides the device for early case finding, for making an accurate evaluation and diagnosis, for school placement recommendations, and for providing much of the treatment, supervision, and rehabilitation. Of the 22 hospitals with an outpatient department, only 7 provided a separate children's orthopedic clinic and only 3 had a pediatrician in attendance. There was an extreme variation in the physician-patient ratio in the orthopedic clinics (table 4). No hospital orthopedic clinic had a "time" appointment system for its patients, meaning long periods of waiting for mothers and children. Five clinics had a plan for review and follow-up of broken appointments. There were no regular staff conferences in any of the clinics. Although casts were usually changed during the regular clinic hours, in some instances patients were scheduled for revisits on "special cast days."

TABLE 4.—*Physician-Patient Ratio in Hospital Orthopedic Clinics*

Physician-Patient Ratio	No. of Hospitals
Less than 1:10	6
1:10 to 1:19	5
1:20 to 1:29	5
1:30 to 1:39	2
1:80	1
1:100	1
No information	2
No clinic	3
Total	25

COMMENT

From the viewpoint of the pediatrician, the single outstanding finding in the survey material is the fact that such a relatively high percentage of the hospitals are approved for pediatric residency training, have a pediatric resident staff, and have a qualified pediatrician as chief of the pediatric staff; yet there has been so little pediatric participation in the orthopedic care of these children either in the inpatient or the outpatient service. The reasons for the lack of pediatric participation vary from hospital to hospital. Generally there seems to be a lack of appreciation of the contribution that the pediatrician is able to make in the care of these children and some lack of interest on the part of the pediatric staff. The probable reason for this is the fact that many pediatricians during their period of postgraduate training did not have an opportunity to participate in the care of orthopedically handicapped children. At postsurvey conferences with the staffs of the hospitals, many pediatricians have been most receptive to the suggestion that they play a more active role. Not only is the participation of the pediatric staff important from the viewpoint of the actual contribution that the pediatrician is able to make, but since most of the hospitals are approved for pediatric residency training, opportunity should be provided for the house staff members to become trained in the field of orthopedics and learn the meaning of "team care" of an orthopedically handicapped child. With the steadily increasing number of children being treated at home or on outpatient basis there is a critical need for concomitant improvement and expansion of outpatient facilities. Although frequently the major problem, the orthopedic medical component in reality represents but one of the features in the over-all care of the child on an outpatient basis. The clinic not only must serve as the link between hospital and home care but must provide for early case finding and accurate diagnosis and evaluation and plan for long-term medical, social service, and nursing care in chronic illness. Consultation with the pediatrician when indicated, or original referral and clearance from a separate pediatric clinic, as is the current practice, is wholly unsatisfactory as a means of rendering good continuous over-all care to a handicapped child and neglects completely the team approach to common problems. Since the outpatient department closely represents the type of patient seen in daily practice, it is valuable training for a pediatric resident in early recognition of orthopedic abnormalities.

In general there has been a low census of orthopedically handicapped children in hospitals surveyed. In the past several decades there has been a steady decline in orthopedic disabilities associated with rickets and tuberculosis of bones and joints due to general improvement in child health supervision and to public health measures and a decrease in disability due to osteomyelitis since the advent of antibiotics. Nevertheless, hospital inpatient facilities in a large urban area have not been readjusted to the changing clinical picture. From the viewpoint of improved comprehensive care and resident training, the low census in many of the inpatient services raises the question as to whether it might be more desirable to approve fewer services of better quality, with a regional or geographical plan for rotating house staff members of the various specialties.

In general, visiting hours for hospitalized children are too sharply limited. It is felt that liberalization of hours would reduce the untoward psychological effects of separation from the family, serve as a means for parent teaching and interpretation of the child's needs, and assist in certain essential activities such as feeding. Recognizing the administrative objections, which in most instances are soluble, the advantages of liberalized visiting hours appear obvious.

SUMMARY AND CONCLUSIONS

Three basic medical specialties are essential to the care and rehabilitation of orthopedically handicapped children—the orthopedic surgeon, the pediatrician and the physiatrist. They should participate on a "team" basis, so that they see the child on admission, follow the child during the inpatient hospital course, make joint rounds, attend joint conferences, and plan for the child's discharge and ongoing care. Provision should likewise be made for their joint participation in outpatient care. Although the phrase "the team approach" has become a cliché, the concept rarely has been applied. In addition to the physicians, the essential nonmedical members of the team should be included—the social worker, hospital and public nurses, the psychologist, the physical and occupational and speech therapists, the recreation worker, the nutritionist, the vocational counselor, and the teacher. The skills of many professional disciplines are necessary for the total evaluation, care, and rehabilitation of these children.

A review of the pediatrician's role in the care of orthopedically handicapped children, based on team survey of 25 children's hospital orthopedic services in New York City, indicates that there has been surprisingly little pediatric participation. In both hospital and outpatient care the pediatrician should participate in the medical care of the child and he is often the closest link with the family. He is the most responsible individual in the area of early case finding and early recognition of orthopedic disability, which so often determine whether a child will grow into a healthy normal or a deformed adult.

125 Worth St. (13) (Dr. Wallace).

The Medical Student in Ancient Greece.—In contrast to the magical and rigidly traditional world of Assyrian medicine, and the more rational but hardly less rigid Egyptian cult, the medicine of ancient Greece, whose flower is preserved for us in the Hippocratic writings, seems like a breath of fresh air or a flooding of sunshine into a dank and sinister cave, for though the priests of the temples of Asklepios jealously guarded the belief in divine revelation as a guide to medical treatment, yet they were content to maintain the closest and most friendly relations with the true doctors, the Asklepiadae whose medical schools were established in close proximity to the temples which they regularly frequented and where they studied the illnesses and cures of patients treated there for all kinds of diseases. Medical teaching in these schools of the Asklepiadae—which resembled modern academies rather than universities—began at an early age and in the common case of a doctor's son was naturally initiated by the father. It was continued by practical training from other doctors to whom an honorarium was payable and the pupil when qualified was bound to teach the healing art to the sons of his teacher without remuneration (Puschmann, 1891). The oath which the student eventually took on admission to the Society of the Asklepiadae is preserved in the later Hippocratic collection and represents a far higher ethical code for the regulation of the doctor's life and practice than the world had known previously. The picture it paints of the relations between teacher and student is one that any teacher to-day might envy, as the budding doctor swore "To regard my teacher in this art as equal to my parents." It is obvious from this oath and from what we know of the way of life in Hippocratic and post-Hippocratic times that the medical student must have lived a far healthier life than in most other ages and countries, and a much more interesting one as Greek medicine, like all Greek learning, derived its glory from the impulse of intense curiosity which alone can further the advancement of scientific research. —Sir Weldon Dalrymple-Champneys, Bt., D.M., F.R.C.P., The Medical Student Through the Ages, *Proceedings of the Royal Society of Medicine*, October, 1955.

CLINICAL EVALUATION OF LENTE INSULIN IN ONE HUNDRED NINE DIABETIC PATIENTS

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The first significant advance in insulin modifications since the introduction of isophane (NPH) insulin, a crystalline modification of protamine zinc insulin, was the development of so-called insulin-zinc suspensions by Hallas-Møller and co-workers of the Novo Laboratories, Copenhagen, in 1952.[1] Indeed, the rather startling revelation that zinc alone is capable of extending the time-action curve of insulin had eluded competent investigators for many years, simply because it was not fully realized that such delayed action is actually a fourfold function of a suitable buffer (acetate), a critical pH range (pH 5-8), the quantity of zinc present (not less than 0.5 mg. of zinc per 1,000 units of insulin), and the physical state of the insulin (amorphous and crystalline [large or small crystals]).

The commonly used phosphate buffer has been the major deterrent to prolongation of insulin action by zinc alone, even in the presence of large concentrations of zinc. In the presence of a phosphate (or citrate) buffer, the insulin crystals dissolve as the zinc is liberated and the latter is precipitated as zinc phosphate. Previous ignorance of this fact necessitated the use of foreign protein substances such as protamine, histone, and globin to retard the absorption of injected insulin. On the other hand, in the presence of an acetate buffer, insulin crystals apparently permit substances such as zinc to enter into the crystals by diffusion and react chemically with the insulin within its crystal lattice. Summarily, any insulin preparation with a properly adjusted pH, a suitable buffer, and zinc in adequate concentration will contain all the undissolved insulin bound to zinc at the neutral point and be thus capable of prolonged action.

INSULIN-ZINC SUSPENSIONS

Insulin-zinc suspensions exist in two basic physical forms, namely amorphous and crystalline. Amorphous insulin (referring to the physical state of the insulin and not its purity, since crystalline insulin is used in its preparation) is prepared by the precipitation of dissolved crystalline insulin.[2] The amorphous precipitate forms when the pH is adjusted rapidly upward during preparation and the resultant suspension exists in a form more rapidly absorbed, having a time-action potential of about 12 to 18 hours. This preparation is called semilente insulin and contains 2 mg. of zinc per 1,000 units of insulin, with a blood pH of 7.2. The crystalline form, on the other hand, results when insulin crystals are suspended in a solution of a zinc salt and remain undissolved in the pH range of 5-8, provided substances that interact with the zinc are not present.[3] The precipitation zone of pH at which crystallization occurs will vary somewhat with the amount of zinc present.[1] The crystalline form is termed ultralente insulin, a single injection of which may be capable of acting as long as 96 hours.[4]

It is readily apparent that the time action of neither semilente nor ultralente insulin is completely satisfactory; however, the time-action potential can be varied at will simply by admixture of different quantities of these two basic insulin-zinc suspensions. This observation led to the adoption of a mixture ratio considered most ideally suited to control the average diabetic; namely, a mixture of 70% ultralente and 30% semilente insulin. Preliminary observations on this preparation, which is designated lente insulin, or insulin type 70/30, suggest that for practical purposes the time-action curves are superimposable on those of isophane insulin. In fact, conversion from isophane to lente insulin has been made on a unit for unit basis in the studies by Peck and others.[4]

As a general rule the biphasic action curves achieved by "tailor-made" mixtures of protamine zinc insulin and unmodified insulin can be duplicated by similar admixture of amorphous and crystalline insulin-zinc suspensions, but in the latter instance there is the distinct advantage that the two insulins can be premixed several months in advance since the resultant mixture is stable for long periods. While isophane insulin is equally stable and may likewise be premixed, only its fast-acting component can be enhanced. There is no way of prolonging the action of isophane since ordinary protamine zinc insulin cannot be added in situations where this feature is desirable. The advantages of premixed insulins are self-evident.

A number of British investigators have published favorable clinical observations on preliminary trials with insulin-zinc suspensions,[5] and these reports are largely responsible for the commercial availability of these preparations in England, Denmark, and the United States at the present time. In Britain, however, published observations on these trials are in relation to only small groups, ranging from 11 [5a] to 29 [5b] patients, and conclusions to be drawn therefrom are subject to decided limitations. The report of Peck and co-workers [4] represents the largest series at the time of this writing, namely,

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From the Department of Internal Medicine, Grand Forks Clinic, and the University of North Dakota School of Medicine.

Read at the 15th Annual Meeting of the American Diabetes Association, Atlantic City, June 5, 1955.

The pH studies on mixtures of lente insulin and zinc-insulin crystals were carried out by W. E. Cornatzer, M.D., Ph.D., Professor and Chairman, Department of Biochemistry, University of North Dakota School of Medicine.

The lente insulin used in this study was supplied by Dr. William R. Kirtley, Lilly Research Laboratories, Indianapolis.

1. Hallas-Møller, K.; Petersen, K., and Schlichtkrull, J.: Crystalline and Amorphous Insulin-Zinc Compounds with Prolonged Action, Ugesk. læger **113**:1761-1767 (Dec. 27) 1951.

2. Hallas-Møller, K.; Jersild, M.; Petersen, K., and Schlichtkrull, J.: Clinical Investigations on New Insulin Preparations with a Protracted Action: Insulin-Zinc Preparations Used in One Daily Injection, Ugesk. læger **113**: 1767-1771 (Dec. 27) 1951.

3. Hallas-Møller, K.; Petersen, K., and Schlichtkrull, J.: Crystalline and Amorphous Insulin-Zinc Compounds with Prolonged Action, Science **116**: 394-398 (Oct. 10) 1952.

4. Peck, F. B., Sr.; Kirtley, W. R.; Dyke, R. W., and Ernst, C. E.: Present Status of Insulin-Zinc Suspensions, Diabetes **3**: 261-265 (July-Aug.) 1954.

5. (*a*) Lawrence, R. D., and Oakley, W.: A New Long-Acting Insulin: Preliminary Trial of "Lente" Novo Insulin, Brit. M. J. **1**: 242-244 (Jan. 31) 1953. (*b*) Oakley, W.: "Lente" Insulin (Insulin Zinc Suspension): Further Studies, ibid. **2**: 1021-1023 (Nov. 7) 1953. (*c*) Murray, I., and Wilson, R. B.: The New Insulins—Lente, Ultralente, and Semilente, ibid. **2**: 1023-1026 (Nov. 7) 1953. (*d*) Nabarro, J. D. N., and Stowers, J. M.: The Insulin Zinc Suspensions, ibid. **2**: 1027-1030 (Nov. 7) 1953.

60 outpatients and 47 inpatients, but only 29 were selected for detailed analysis. In the latter report the first case of allergy is recorded, refuting the previous impression that allergy does not occur with insulin-zinc suspensions.

In the midst of enthusiasm for the new insulin-zinc suspensions the wisdom of introducing three new preparations has been challenged[6] on the grounds that "dangers resulting from confusion between different preparations will be much increased." However, only two new preparations should prove necessary if it is subsequently shown that unmodified insulin can be mixed with either ultralente or lente insulin. The current impression is that the addition of unmodified insulin, with a pH of 2.9 to 3.5, to either lente or ultralente insulin fails to impart a quick-acting component, because the unmodified insulin is converted into ultralente insulin as a result of the inability of the mixture to be buffered effectively outside the range at which crystalline precipitation occurs. This impression presupposes, of course, that the unmodified insulin used contains neither phosphate nor citrate buffer, the latter of which alone would nullify sustained action by precipitation of the zinc as zinc phosphate or citrate. Before the elimination of amorphous insulin-zinc suspension as a separate preparation can be anticipated, the feasibility of mixing unmodified insulin with either lente or ultralente insulin awaits further elucidation.

The original purpose of Hallas-Møller and co-workers in introducing three new insulin-zinc suspensions consisted of an attempt to fulfill the variable insulin time-action requirements in 65 patients with severe cases of diabetes. The terms A, B, and C reactions were used to designate in a simple way the different blood sugar curves obtained. These curves indicated nothing specific about either the preparation or the patient but expressed exclusively the interaction between the factors involved; namely, the type of diabetes the patient had, his diet, the amount of exercise and sleep he got, and the insulin preparation used.[7] The implications are tantamount to saying that no simple relationship exists between the blood sugar response of a diabetic patient and the activity range of the insulin preparation. The availability of such diversified insulin-zinc suspensions at the present time falls far short of realization since lente insulin is the only commercially available preparation in this country.

PLAN OF STUDY

From a large diabetic practice, a random selection of 109 diabetic patients was made for clinical trial with lente insulin. Patients' ages ranged from 4 to 78 years, 12 of the total being children under 15 years of age. There were 65 female and 44 male patients. The duration of diabetes in these cases ranged from six months to 36 years. To facilitate analysis of results these patients were later classified into five groups on the basis of difficulty in control of the disease, with reference to stability of fasting and postprandial blood sugar values, frequency and severity of hypoglycemic reactions, and degree of cooperation or adequacy of self-management. Such a classification is obviously arbitrary but serves to simplify the statistical analysis of an otherwise unwieldy, heterogenous group of diabetic patients.

The patients in all four groups were on therapy with isophane or other insulin. Group 1 consisted of 66 patients whose control was considered excellent; that is, the fasting and postprandial blood sugar determinations were not unduly high, hypoglycemic reactions were infrequent or absent, and the degree of cooperation and adequacy of self-management was excellent. In this group there were some patients with minimal glycosuria and moderate hyperglycemia, and vice versa (so-called high and low renal threshold diabetic patients). Group 2 consisted of 18 patients whose control was considered only fair to good in terms of hyperglycemia and hypoglycemic reactions despite apparent conscientious adherence to principles of good self-management and diet. Group 3A consisted of 15 patients whose control was obviously poor as evidenced by frequent hyperglycemia, widely fluctuating determinations of fasting and postprandial blood sugar levels, and frequent, moderate to severe insulin reactions, all occurring despite an apparent conscientious adherence to principles of self-management. Group 3B consisted of six patients whose control was generally poor as evidenced by hyperglycemia, in either or both the fasting or postprandial states, and a marked tendency to insulin reactions, both conditions of which were apparently due to deliberate disregard of diet and rules of self-management. Repeated efforts to improve cooperation had failed. Group 4 consisted of four patients who were characterized as metabolically unstable. Their tendency to frequent attacks of hyperglycemia with ketosis, alternating with frequent, severe hypoglycemic reactions was proved, by previous hospitalization under strict conditions of control, not due to gross disregard of rules or diet.

The majority of these patients had been under close clinical observation for several years, and detailed records of daily urinalyses, numerous fasting and postprandial blood sugar determinations, frequency and severity of insulin reactions, and complications were available. The diets prescribed were set up by a trained dietitian. All candidates for trial with lente insulin were required to have several fasting and postprandial blood sugar determinations made before being considered eligible for clinical trials. Several weeks of optimal control with the previous insulin used was a strict prerequisite to acceptance for clinical trial with lente insulin. Tests for sugar in the urine were performed before meals and at bedtime for at least 7 to 10 days before starting a patient on therapy with the new insulin, although in most instances four tests daily had been routine for much longer periods. At the end of this period, fasting and postprandial blood sugar determinations were repeated and therapy with lente insulin started. After 7 to 10 days of therapy with lente insulin, fasting and postprandial blood sugar determinations were again recorded and careful analytic questioning of the patient followed with regard to ease of control, degree of glycosuria evident from four urine tests daily, tendency to insulin reactions, allergy, and whether the patient felt better, worse, or the same with the new insulin. The same data were recorded during each subsequent visit for fasting and postprandial blood sugar determinations. Such follow-up visits were required every two or three weeks (or oftener) during the several months' trial period with lente insulin. Thus, prolonged observation permitted more numerous fasting and postprandial blood sugar determinations, together with a study of such things as the frequency and severity of hypoglycemic reactions and allergic phenomena.

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[6] Insulin Zinc Suspensions, editorial, Brit. M. J. 2: 1037-1038 (Nov. 7) 1953.

[7] Hallas-Møller, K.; Jersild, M.; Petersen, K., and Schlichtkrull, J.: Zinc Insulin Preparations for Single Daily Injections: Clinical Studies of New Preparations with Prolonged Action, J. A. M. A. 150: 1667-1671 (Dec. 27) 1952.

Each patient accepted was carefully examined to exclude any possible sites of infection or other complications that would invalidate comparative clinical appraisal of the two respective treatment programs. During the course of treatment with lente insulin, 7 (6%) of the total of 109 patients required brief hospitalization ranging from two to seven days for treatment of influenza, upper respiratory infections, or minor injuries, but during such periods the trial data were omitted. This served to prevent confusion in evaluating over-all results.

Every effort was made to maintain uniformity in the conditions under which clinical trials would be made. Thus, no alteration in total calories of the daily diet was permitted when changing from the previous insulin preparation to lente insulin, although minor changes were occasionally necessary in the distribution of calories among feedings. Also, since an appreciable change in weight during either of the two clinical trial periods with insulin therapy would obviously invalidate the comparison of results in a given patient, such cases were omitted. The notorious influence of obesity or weight loss on blood sugar levels and on insulin requirement is too well known to merit emphasis here.

In groups 1 and 2 average fasting and average postprandial blood sugar values were determined during periods of optimal control with lente insulin and with previously used insulins. From 3 to 12 blood sugar determinations were the source of each average value. The same approach was utilized to arrive at average values in groups 3A, 3B, and 4, but, in addition, the over-all range of fasting and postprandial blood sugar values, respectively, was recorded for each patient during periods of optimal control. This was believed statistically significant because of the wide fluctuations in blood sugar levels that were peculiar to these three groups. In all, 2,344 blood sugar determinations were made. Final comparison of results was not made until patients had been taking lente insulin, with or without admixture, for periods ranging from 3 to 10 months. For convenience of recording, insulin reactions were graded on the following basis: grade 1, earliest recognizable signs and symptoms of hypoglycemia; grade 2, definite and moderately severe signs and symptoms of hypoglycemia; grade 3, severe signs and symptoms of hypoglycemia without loss of consciousness; grade 4, extreme signs and symptoms of hypoglycemia progressing to unconsciousness, or "hypoglycemic coma." Each patient was advised to carefully note the time of day when reactions occurred. (Detailed printed record sheets with ample space to record all the above details were provided for each patient.)

During each of the two clinical trial periods glycosuria was expressed as an "average" for each of the four daily tests on the basis of 0 to 4+ sugar as indicated by Clinitest. Samplings were taken during periods of optimal control for two weeks or more on each treatment program. Precise correlation of blood sugar determinations with simultaneous urine tests for sugar on "second voidings" (the specimen to be tested was voided about 15 to 20 minutes after emptying the bladder and drinking a glass of water) served to establish the reliability of urine tests in reflecting interim fluctuations in blood sugar values presumed to occur between actual blood sugar determinations. When the apparent renal threshold was thus determined for each case, urine tests were utilized as ancillary data in evaluating the over-all diabetic control achieved by lente insulin as compared with previously used insulin preparations.

RESULTS

Group 1.—In group 1, 10 of 66 patients exhibited definite improvement in control, 55 were equally well controlled, and one was not quite as well controlled on therapy with lente insulin, as compared with the degree of clinical control with previously used insulins. (Sixty-three patients had previously been taking isophane insulin, two patients had been taking mixtures of protamine zinc and soluble insulin, and the remaining patient had been taking globin zinc insulin.) Improved or equally good control of the blood sugar level was achieved in 57 patients by an equal or slightly lower dose of lente insulin, as evidenced by the grand averages illustrated in figure 1. The remaining nine patients required from 2 to 14 units more lente insulin daily for optimal control.

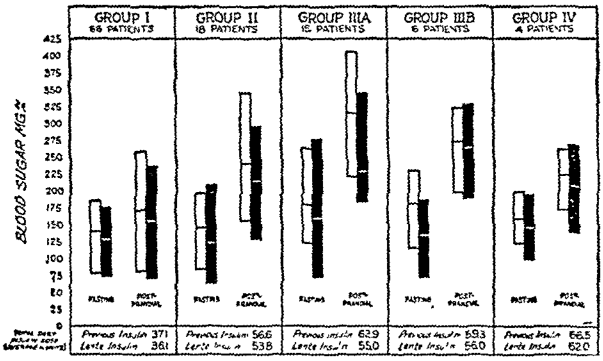

Fig. 1.—Grand average and over-all range of average fasting and postprandial blood sugar values for each group studied. Note that grand averages are consistently lower with patients on therapy with lente insulin than with previously used insulins. Total doses include insulin mixture used in 12 patients. White bar = previous insulin used, black bar = lente insulin, horizontal line across bars = average.

Hypoglycemic reactions occurred in 21 patients during treatment with previously used insulins but in only 9 when lente insulin was substituted. Such reactions to lente insulin did not occur in any patient devoid of reactions to previously used insulins, and in no instances were reactions with lente insulin more severe. There was little difference in the time of day when reactions occurred in a given patient on either of the two treatment programs, except that a slightly greater preponderance of reactions in the morning was evident in those patients on therapy with lente insulin. Localized allergy occurred in 12 patients on therapy with lente insulin and in 16 patients on therapy with previously used insulins. Eight of the 16 patients manifesting allergy to previously used insulins were likewise allergic to lente insulin. Such allergic phenomena were evanescent (persisting only a few days) in 12 patients during therapy with previously used insulins and in 9 patients during lente insulin therapy. Allergy was eliminated only when special beef preparations of the respective insulins were substituted in four patients on therapy with previously used insulins and in three patients on therapy with lente insulin. (Special beef lente insulin may be obtained for use in patients with persistent allergy to the conventional insulin preparation.) A transient, localized burning sensation at the sites of injection was described by nine patients receiving lente insulin, while only five patients reported a similar experience after injection of isophane insulin.

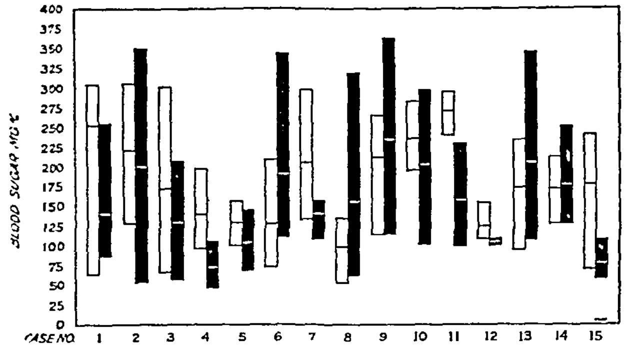

Fig. 2.—Average and range of fasting blood sugar values in 15 patients comprising group 3A. Note that 10 showed lower average values but that 9 showed wider range of values on therapy with lente insulin. Control is generally poor on either insulin program. White bar = previous insulin used, black bar = lente insulin, horizontal line across bars = average

Group 2.—In group 2, 8 of 18 patients exhibited definite improvement in control of the blood sugar level, and the remaining 10 showed equally good control with lente insulin (fig. 1). The degree of over-all clinical control paralleled these blood sugar levels without exception. Grand averages of fasting and postprandial blood sugar values and the average daily dose of insulin for this group as a whole were significantly lower during therapy with lente insulin, as illustrated in figure 1. Hypoglycemic reactions occurred in 17 patients during treatment with previously used insulins but in only 15 after therapy with lente insulin was substituted. Reactions were more frequent and severe in one patient but less frequent and less severe in three patients during the latter program. Here again, reactions to lente insulin did not occur in any patient devoid of reactions to previously used insulins. Localized allergy from therapy with lente insulin was noted in one patient who had no previous insulin allergy and in two patients who had had allergic reactions during therapy with previously used insulins. Burning sensations at injection sites were reported from use of lente insulin in one patient and from use of isophane insulin in another case.

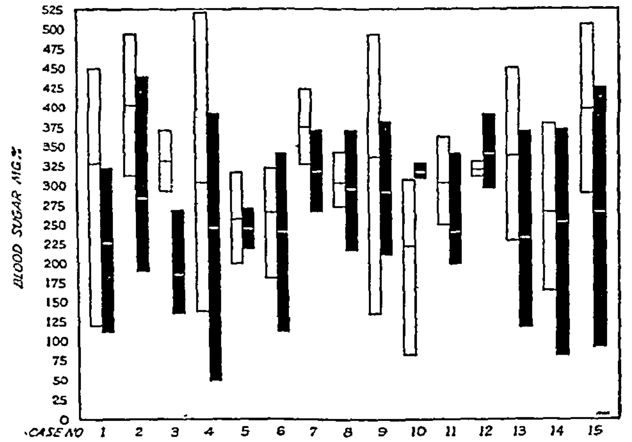

Fig. 3.—Average and range of postprandial blood sugar values in 15 patients comprising group 3A. Note that 13 showed lower average values but that 10 showed wider range of values on therapy with lente insulin. Control is generally poor on either insulin program. White bar = previous insulin used, black bar = lente insulin, horizontal line across bars = average.

Group 3A.—In group 3A blood sugar values showed slight to moderate improvement in control in 8 of the 15 patients, equally poor control in 5 patients, and poorer control in the remaining 2 patients during trials with lente insulin (fig. 2 and 3). Here again, over-all clinical control paralleled control of the blood sugar level. During therapy with lente insulin grand averages of fasting and postprandial blood sugar values were significantly lower for this group; this was achieved by a slightly lower daily dose of insulin (fig. 1). In one case hypoglycemic reactions, occurring occasionally during treatment with the previously used insulin (isophane), were totally absent during lente insulin therapy. On the other hand, reactions to lente insulin were more frequent and more severe in five patients and less frequent and less severe in five patients than corresponding reactions with previously used insulins. In the remaining four patients reactions were essentially similar in frequency and severity on either insulin program. All patients exhibiting reactions to lente insulin had experienced reactions to previously used insulins. Three patients in this group experienced localized allergy to previously used insulins, but only one of these was likewise allergic to lente insulin. The latter was the only patient allergic to lente insulin in this group. As previously mentioned, diabetic control in this group was generally poor. Burning sensations at injection sites were reported from previ-

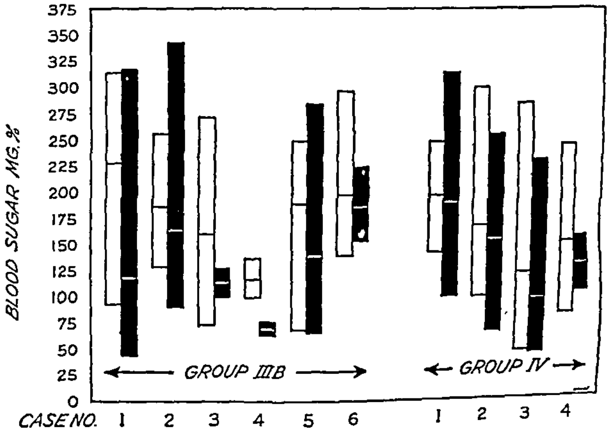

Fig. 4.—Average and range of fasting blood sugar values in six patients comprising group 3B and in four patients comprising group 4. Note that all patients in both groups showed lower average values but that four showed wider range of values on therapy with lente insulin. Patients in cases 1 and 2 of group 4 were on therapy with mixture of lente insulin and zinc-insulin crystals. Diabetic control was generally poor in all cases. White bar = previous insulin used, black bar = lente insulin, horizontal line across bars = average.

ously used insulins in four patients, but no patients in this group experienced this phenomenon from use of lente insulin.

Group 3B.—In group 3B control of blood sugar levels and, likewise, over-all clinical control were definitely improved in one of six patients, slightly improved in two, equally poor in two, and slightly poorer in one during lente insulin therapy (fig. 4 and 5). Here again, average blood sugar values and total daily insulin dosage were significantly lower for the group as a whole during trials with lente insulin (fig. 1). Hypoglycemic reactions were less frequent and less severe in only one patient, slightly more frequent and severe in another patient, and about equally frequent and severe in the remaining four patients during trials with lente insulin. All patients who experienced reactions to lente insulin likewise had reactions to previously used insulins. Localized allergy occurred in two patients during therapy with previously used insulins but in no patients during lente insulin therapy. Burning sensations at injection sites occurred in only one patient in this group, and this was experienced from lente insulin. As previously mentioned, poor control of the diabetes and poor cooperation were characteristic of this group.

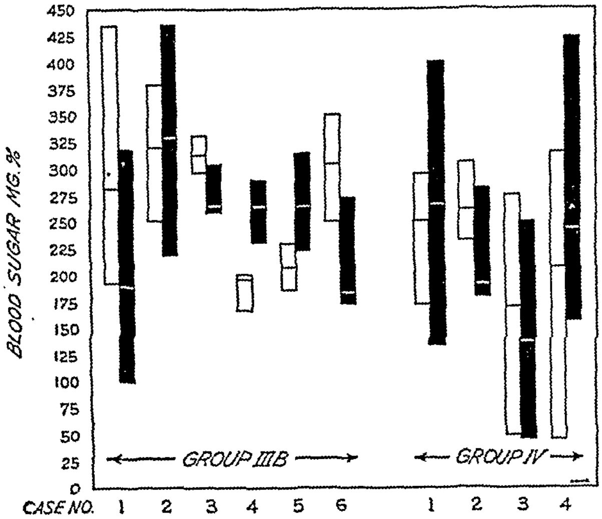

Fig. 5.—Average and range of postprandial blood sugar values in six patients comprising group 3B and in four patients comprising group 4. Note that five showed lower average values but that six showed wider range in values on therapy with lente insulin. In two instances (case 6, group 3B; and case 4, group 4) range is the same with either insulin except that over-all fluctuations do not occur at same levels. Diabetic control generally poor in all cases. White bar = previous insulin used, black bar = lente insulin, horizontal line across bars = average.

Group 4.—In group 4 control of blood sugar levels was slightly improved in two of four patients and slightly poorer in two patients during lente insulin therapy (fig. 4 and 5). Average fasting and postprandial blood sugar values together with the average daily insulin dose for this group reflect the same trend of slightly better control on slightly smaller dosage of lente insulin, as observed in the four preceding groups (fig. 1). Hypoglycemic reactions were definitely less frequent and less severe in three patients but more frequent and severe in the remaining patient. As previously mentioned these were characterized as metabolically unstable diabetic patients in whom attempts to achieve better control of the blood sugar were fraught with increased frequency and severity of hypoglycemic reactions. Conversely, attempts to lessen the frequency and severity of hypoglycemic reactions frequently resulted in bouts of excessive hyperglycemia and ketosis. The degree of superiority of over-all clinical control achieved by lente insulin in the two patients mentioned was actually minimal. A generalized urticarious reaction occurred in one patient while receiving isophane insulin; it disappeared when lente insulin was substituted. One instance of temporary localized allergy to lente insulin was noted in another patient who had exhibited no allergy to isophane insulin. No burning sensations at injection sites occurred in any patient in this group.

Lente and Unmodified Insulin Mixture.—Mixtures of lente and unmodified insulin (zinc-insulin crystals) were tried in 12 patients. These patients were selected as follows: one patient from group 1, two patients from group 2, seven patients from group 3A, and two patients from group 4. Blood sugar control on this program of treatment was distinctly superior in three patients, moderately improved in four patients, equally poor in two patients, and distinctly poorer in the remaining three patients. One of the latter three patients discontinued therapy with the mixture of lente and unmodified insulin and resumed therapy with a mixture of isophane and unmodified insulin after a six months' trial of therapy with a mixture of lente and unmodified insulin (fig. 6). Hypoglycemic reactions were less frequent and less severe in five patients, more frequent and more severe in two patients, and of equal frequency and severity

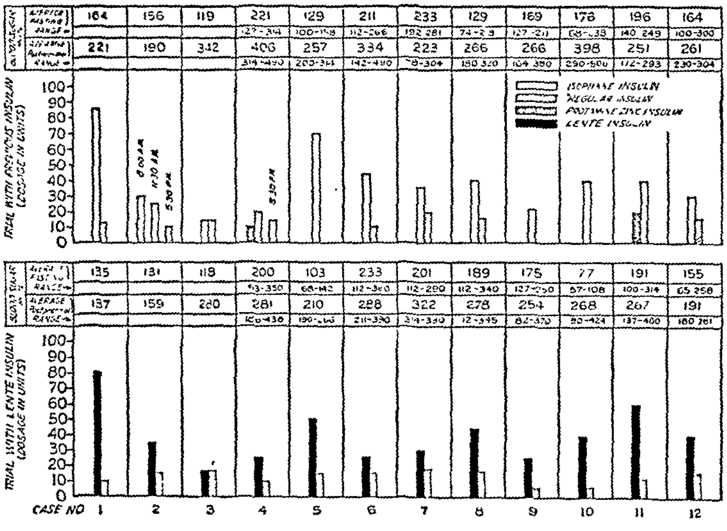

Fig. 6.—Comparison of results of previously used insulin with mixtures of lente and zinc-insulin crystals. Each double column denotes insulin mixture. Single columns denote injection of one type of insulin. All mixtures injected before breakfast. Note that average fasting and postprandial blood sugar levels were lower in seven patients (cases 1, 2, 3, 4, 5, 10, and 12) with the mixture containing lente insulin and that over-all control of the diabetes was significantly improved in each case. Fasting blood sugar determinations were lower in nine patients, as were postprandial values in nine patients. Wider range in fasting and postprandial blood sugar determinations occurred in seven and six patients, respectively, during trial with mixture including lente insulin. One (case 8) changed back to previous insulin program on which this patient had fewer insulin reactions and somewhat more stable blood sugar levels. Results suggest that mixture with lente insulin may be superior in more patients with stable diabetes (cases 1, 2, and 3) but that there are no decided advantages in treatment of patients with unstable diabetes as represented by the remaining cases.

in one patient during therapy with a mixture of lente and unmodified insulin. In three patients, however, reactions occurring while on therapy with previously used insulins entirely disappeared when the lente insulin mixtures were given. One patient experienced no reactions during either of the two clinical trial periods. No allergic reactions whatever occurred in this group.

Each of the 109 patients was asked whether he or she felt better, the same, or worse during treatment with lente insulin, as compared with the previous insulin program. Results are listed in table 1. At the time of this writing only 4 of the 109 patients had discontinued therapy with lente insulin to resume use of the previous insulin.

TABLE 1.—*Patients' Opinion of Their Condition When Using Lente Insulin*

Opinion	Group 1	Group 2	Group 3A	Group 3B	Group 4
Better	20	7	5	3	2
Same	46	10	8	3	2
Worse	0	1	2	0	0
Total	66	18	15	6	4

Hypoglycemic Potentialities of Lente Insulin.—The prolonged observation possible in this study afforded an excellent opportunity to record the protean manifestations of hypoglycemic shock, both quantitatively and qualitatively. It soon became apparent that lente insulin may exhibit all the dangerous hypoglycemic potentialities inherent in other modified insulins. In two patients (one from group 3B and one from group 4) there occurred sudden loss of consciousness without any aura whatever, the patients suddenly falling down. Similar reactions had occurred from previously used insulins in these patients, except that a momentary warning preceded the attacks. Another cumulative hypoglycemic reaction from lente insulin occurring in the case of a 4-year-old-boy in group 1 was characterized by formications and visual hallucinosis in the form of "worms crawling all over the body." The hysterical child was constantly attempting to brush off the worms. Despite chemical correction of the hypoglycemia in the hospital this alarming reaction persisted for eight hours, subsiding gradually thereafter. In this case the child's mother had failed to follow directions in lowering the insulin dosage, as urine tests had shown improved control.

Allergy.—Six of the total of 109 patients, having no allergy to previously used insulins, exhibited definite localized allergy, such as redness, swelling, and itching, at sites of lente insulin injections. In one instance this phenomenon disappeared in the second week with lente insulin therapy. In three instances the allergy disappeared when special beef lente insulin was substituted, but in the remaining two cases allergy persisted even after substitution of special beef lente insulin; however the allergy disappeared upon resuming use of the previous (isophane) insulin. In all groups, a total of 24 patients (22%) exhibited mild to severe allergic reactions during therapy with previously used insulins, while only 15 patients (14%) exhibited similar reactions to lente insulin. A transient burning sensation was experienced at injection sites by 10 patients (9%) on therapy with previously used insulin and by 11 patients (10%) on therapy with lente insulin (table 2).

Among all groups the renal threshold for glucose was considered abnormally high in nine patients and abnormally low in two patients. In these cases more frequent determinations of the blood sugar level were made as an obvious necessity for accurate appraisal of the comparative efficacy of lente and previously used insulins. In the remaining 98 patients urine tests performed four times daily on "second voidings" were found to be a reasonably accurate indication of blood sugar levels.

COMMENT

The statistical analysis illustrated in figure 1 is intended only to reflect an over-all trend in blood sugar values and total daily insulin requirements for each of the five groups during respective trial periods with lente insulin and previously used insulins. Analysis of results hitherto presented by groups disclosed that over-all diabetic control with lente insulin was distinctly inferior to control with other insulin in six patients as follows: in group 1, one patient; in group 3A, two patients; in group 3B, one patient; in group 4, two patients. On the other hand, it should be noted that more or less improved control with lente (or a mixture of lente and unmodified) insulin was achieved in 31 patients as follows: in group 1, 10 patients; in group 2, 8 patients; in group 3A, 8 patients; in group 3B, 3 patients; in group 4, 2 patients. In the remaining total of 72 patients among all groups over-all clinical control was considered equally good, or equally poor, with either lente or the previous insulin used. Space prohibits detailed reporting of the critical analysis to which each patient was subjected before final comparisons were made and judgment passed on the degree of clinical control achieved by the preceding insulin used and lente insulin respectively. In evaluating degree of clinical control, the patients' opinions were ignored, since too often the psychic influence of "trying something new" is at least temporarily in the direction of exaggerating its merits. The generalization that appears most significant is that lente insulin was proved to be distinctly inferior in only six patients.

Dosage and Control.—Lente insulin appears to be somewhat more efficient than isophane insulin on a unit for unit basis in the majority of cases, although its superiority is usually slight. In converting a patient from isophane to lente insulin, these results suggest that one should begin the latter at slightly lower dosage than the current dosage of isophane. This approach will fortify the patient against hypoglycemic reactions in the morning, which appear to be a little more common with use of lente insulin. In occasional instances suppertime and bedtime feedings were increased slightly by redistribution of the total daily caloric intake as further prophylaxis against reactions. Except for the above phenomenon, very little difference was noted in the time of day insulin reactions occurred. It is noteworthy that in

TABLE 2.—*Incidence of Allergic Reactions and/or Burning Sensation at Site of Injection*

Insulin	Allergy		Burning	
	No.	%	No.	%
Previously used	24	22	10	9
Lente	15	14	11	10

group 1 the incidence of insulin reactions fell from 32% to only 14% after conversion to lente insulin. This, coupled with the observation that usually a little more efficient control, or at least equally good control, is achieved by a slightly smaller dosage of lente insulin than the dosage in previously used insulins (in 57 of 66 patients), is impressive evidence that lente may well be the over-all insulin of choice in the average stable diabetic patient whose condition is mild. Such a conclusion appears also justified for the patients in group 2, but similar conclusions cannot be drawn from the data exhibited by the remaining three groups of patients in whom problems are more apt to be those of individualization. In the latter groups improved control of the blood sugar level was too often beset with more frequent hypoglycemic reactions, and, conversely, attempts to eliminate such reactions by reducing insulin dosage eventuated in poorer control of the blood sugar level (a grim reminder that we are still far from the ideal insulin). Indeed, in group 3B the whole problem is further compounded by lack of patient cooperation, but it is of curious interest that apparently slight over-all improvement in control occurred in three patients, disregarding the patients' own opinions, which were also favorable.

In some instances of very unstable diabetes (group 4) the practice of administering two doses of isophane insulin daily (three-quarters of the total dose given before breakfast and one-quarter before supper) was likewise tried with lente insulin, with similar results. True "brittle" diabetes usually cannot be efficiently controlled by any long-acting insulin, including lente insulin. These cases are best controlled by multiple doses of unmodified insulin,[8] since this approach at least eliminates the dangerous, prolonged, cumulative hypoglycemic reactions seen all too often in this group. For example, one such patient, not included in this study, had been without a single hypoglycemic reaction for four years while taking three doses of unmodified insulin daily. She requested a trial of lente insulin and, after appearing to be in excellent control for two weeks, suddenly developed a severe, prolonged hypoglycemic coma, sustaining a scalp laceration from a fall after the onset of sudden unconsciousness. Thereafter, despite every attempt at meticulous regulation, she continued to have sudden, severe, sustained reactions with convulsions. It is of interest that she had tried isophane insulin four years previously with the same catastrophic results. Mixtures of protamine zinc and soluble insulin had been equally unsatisfactory in this patient.

Mixture of Lente with Zinc-Insulin Crystals.—Notwithstanding reports to the contrary, the results of trials in 12 patients indicate that lente insulin can be successfully mixed with zinc-insulin crystals (the dosage of the latter not exceeding that of the former) in situations where enhancement of the quick-acting component is desired. Such mixtures appear to be superior to isophane or protamine admixtures with unmodified insulin, at least in the patient with more stable diabetes (fig. 6). In no case was there evidence that unmodified insulin, when mixed with lente, failed to enhance the quick-acting component or lowered the pH sufficiently to cause crystalline precipitation, thereby unduly prolonging the time action of lente insulin. In fact, the two insulins apparently function independently in such mixtures, according to Holcomb and his co-workers [9] and Marble.[10] However, these observations are to be accepted with reservation in view of the limited trials attempted. They are reported with the hope of stimulating further investigation. It is worthy of emphasis that pH studies carried out by the Lilly Research Laboratories and by the department of biochemistry at the University of North Dakota Medical School reaffirm the assertion that admixture of as much as one part of zinc-insulin crystals with one part of lente insulin does not depress the pH below 5.7, which is still well above the range at which crystalline precipitation of the soluble insulin occurs (pH 5.0). It should rarely, if ever, be necessary to add more than an equal part of soluble insulin to lente insulin; beyond this point there is the hazard of prolonging rather than quickening the time-reaction potential.

Since a total of 94 patients had been taking isophane insulin prior to trials with lente insulin there seemed little to be gained from making detailed individual comparisons in the remaining 15 patients who had been taking other insulins including multiple doses of soluble insulin, mixtures of protamine zinc and soluble insulin, mixtures of isophane and soluble insulin, and, in one patient, globin insulin.

Skin Reactions and Localized Allergy.—While the over-all incidence of allergic reactions is considerably lower from therapy with lente than from other insulins used in this study, it is considerably higher than previously reported (see table 2). In fact, only one instance of allergy was reported in 107 patients followed by Peck, Kirtley, and others.[4] Perhaps some of this discrepancy is predicated upon just what constitutes an allergic skin response to insulin. In the present study only those skin reactions that the patient found annoying were recorded as allergic phenomena from use of insulin. Furthermore, some skin reactions did not develop until after the insulin had been given for a period of time. In several instances the phenomenon was very transient, persisting only a few days. As Marble [11] has pointed out, the incidence of skin reactions to insulins as noted by various observers has varied "from less than 10% to 55.8%." Such differences are apparently due to the care with which patients are examined after injections and whether mild responses are included as reactions. It has long been known that the incidence of allergic reactions to insulin itself falls precipitously when the latter is recrystallized several times during manufacture.

The occurrence of localized allergy from use of lente insulin in six patients who had no such reactions to previously used insulins merits special emphasis. In three of these patients there is no doubt that such allergy was due to pork insulin, since the use of special beef lente insulin proved to be nonreactive. Because of the two patients whose allergy persisted after substitution of special beef lente insulin (despite total absence of allergy to isophane insulin), there is strong evidence that some sensitizing agent exclusive of insulin and zinc may be present in the lente insulin preparation.

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[8] Haunz, E. A.: An Approach to the Problem of the "Brittle" Diabetic Patient: Study of 6 Cases, J. A. M. A. **142**: 168-173 (Jan. 21) 1950.

[9] Holcomb, B.; Page, O. C., and Stephens, J. W.: Lente Insulin: Clinical Study of New Insulin Zinc Preparation of Prolonged Action, Northwest Med. **53**: 239-241 (March) 1954.

[10] Marble, A.: Management of Diabetes in Childhood, Nebraska M. J. **39**: 455-460 (Nov.) 1954.

[11] Joslin, E. P.; Root, H. F.; White, P., and Marble, A.: The Treatment of Diabetes Mellitus, ed. 9, Philadelphia, Lea & Febiger, 1952, p. 383.

Burning Sensations at Injection Sites.—The transient burning sensation at injection sites noted with about equal frequency from use of lente and other insulins can be quite annoying to the patient and may be simply another sensitivity phenomenon without skin manifestations. The sensation cannot be attributed to traces of alcohol in the syringe, because it also occurred in patients who boiled their syringes before each injection and used no alcohol. Phenol is not responsible for this (in fact, phenol has a local anesthetic effect), for it is present in all Lilly insulins except lente insulin. That insulin itself is not responsible for this phenomenon is borne out by the observation that 17 patients experienced burning from only one of two insulin preparations tried. Zinc cannot be incriminated since one patient who experienced burning from use of lente insulin had no such discomfort from globin insulin with zinc, the zinc content of which is even higher than that of lente insulin. This problem is annoying enough to deserve more detailed investigation.

Patients' opinions listed in table 1 were recorded purely for curiosity and were not utilized in any way to influence interpretation of results. The wisdom of this is apparent from the fact that, among the total of 106 patients who stated that they felt either the same or better while taking lente insulin, there were actually 5 patients in whom over-all clinical control with lente insulin was inferior to control with previously used insulins. At the recent British Diabetic Association meeting, Dr. S. G. Oakley of London reported that his trials with lente insulin were very successful in children and in new patients but that in old patients the dose of lente insulin had to be increased by at least 25% when changing over from previous insulins, "otherwise deterioration and ketosis might occur." [12] A careful analysis of the present series of 109 patients failed to confirm this observation.

SUMMARY AND CONCLUSIONS

Evidence has been presented to indicate that, with a few exceptions, lente insulin can be substituted for isophane insulin on a unit for unit basis; however a slightly lower dose of lente insulin is suggested at the outset, since many patients exhibit significantly better diabetic control on therapy with slightly less lente than isophane insulin. With some exceptions, diabetic control is smoother and insulin reactions fewer and milder in stable diabetic patients when lente insulin is substituted for the previously used insulin. Since lente insulin is the purest long-acting insulin yet developed (devoid of any foreign protein except that which is inherent in the insulin itself), it should be used in every diabetic patient in whom it achieves good clinical control in the absence of persistent allergy. While lente insulin is competitive with, and indeed sometimes superior to, other insulins, with or without admixture, in cases of more severe and unstable diabetes, it is subject to the same decided limitations as its predecessors. Its selection in such cases is distinctly an individual problem and not a substitute for sound clinical judgment. It is axiomatic that in practice the clinician should fit the insulin to the patient and not the patient to the insulin.

Allergic phenomena of a localized nature are seen in a significant percentage of patients receiving lente insulin, although less commonly than in the case of other modified insulins. In such instances the use of special beef lente insulin may be necessary, although the allergy is usually a temporary disturbance. A hitherto unreported phenomenon is the occurrence of definite localized allergy to both lente and special beef lente insulin in two patients who exhibited no allergy to isophane insulin. Hypoglycemic reactions can be just as severe and cumulative from use of lente insulin as reactions encountered with other modified insulins. Such reactions may be presaged with ample warning or may occur suddenly without warning. In patients with milder, more stable diabetes, however, the over-all incidence of reactions from use of lente insulin was decidedly lower among the 66 patients studied (group 1).

Despite earlier reports to the contrary, admixture of lente and unmodified insulin (zinc-insulin crystals) appears to be efficient and practicable, at least in the more stable cases of diabetes mellitus, but further studies are necessary to clarify its limitations in this regard. Until further investigation is forthcoming in the problem of mixtures of the two insulins, it is suggested that no mixture should contain more unmodified insulin than lente insulin, to avoid disrupting the buffer mechanism that preserves the independent time-action potential of lente insulin. Insulin made from zinc-insulin crystals constitutes the preferred unmodified insulin of choice for admixture at the present time.

ADDENDUM

Since the completion of this study, an additional 100 diabetic patients have been subjected to clinical trial with lente insulin. While observation and statistical analysis of this group have been less meticulous, the over-all results appear to be congruent with those in the foregoing report.

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[12] British Diabetic Association Meeting, Foreign Letters (England), J. A. M. A. **156**: 556 (Oct. 2) 1954.

Congestive Heart Failure.—The ability of the heart to fulfill its function in maintaining the circulation can be influenced materially by diet. By appropriate dietary regulation using subcaloric feedings in acute failure, the work of the heart is reduced, thereby increasing blood flow, lowering the blood pressure, slowing heart rate, increasing vital capacity, and inducing diuresis. The restriction of dietary sodium is a basic step in avoiding fluid retention due to impairment of renal sodium excretion. Effort should be made to assure adequate potassium tissue stores by the periodic administration of potassium salts to chronic failure cases. Supplemental vitamin therapy is required as shown by the presence of low tissue vitamin stores in heart failure and the high rates of vitamin excretion during diuresis. The assurance of an adequate protein intake is urgently needed in the hope of avoiding the evidences of protein malnutrition which eventually appear in so many of these patients.—M. G. Wohl, M.D., C. R. Shuman, M.D., and C. Alper, Ph.D., Nutritional and Metabolic Aspects of Congestive Heart Failure, *A. M. A. Archives of Internal Medicine,* July, 1955.

EFFECTIVENESS OF SALICYLAMIDE AS AN ANALGESIC AND ANTIRHEUMATIC AGENT

EVALUATION OF THE DOUBLE BLINDFOLD TECHNIQUE FOR STUDYING ANALGESIC DRUGS

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In view of the interest shown salicylamide for its analgesic and antirheumatic effect, it was thought advisable to study both of these under conditions that would lead to statistical evaluation with placebo and other salicylate therapy. Ichniowski and Hueper[1] found that in rats salicylamide, upon oral and intraperitoneal administration, exerts a slightly quicker and deeper depressing effect than aspirin. Hart[2] noted that the relative analgesic potencies in animals for aspirin and salicylamide were 1 and 7 respectively. Hart also noted that, in a group of 118 patients with arthritis treated with 2 gm. of salicylamide every four to eight hours, satisfactory relief was obtained in 75% of the subjects, but 22% had some untoward reaction. Studies of clinical results with salicylamide, available principally in European literature,[3] favored salicylamide over aspirin. It was noted, however, that large doses of salicylamide are required and that the action of the drug is similar to that of the other salicylates. Our studies of salicylamide were divided according to several plans because we were interested not only in evaluating its analgesic and antirheumatic actions but also in studying the method for the general problem of screening analgesics of this type.

EFFECTIVENESS AND PREFERENCE

In the first study, the effectiveness and safety of salicylamide as an analgesic and antirheumatic agent for musculoskeletal conditions were investigated and compared to aspirin and placebo medication according to the double blindfold technique. Preparations were administered in either tablet or capsule form, with identical appearance for each medicament. No one associated with the investigation was aware of the type of medicament prescribed for any particular patient, since the preparations were supplied according to a code not available to the investigators and were known as S-1 (aspirin), S-2 (placebo), and S-3 (salicylamide). At the end of the investigation, results were analyzed by accepted statistical methods and the code was disclosed.

There were 73 subjects, with the majority of patients presenting pain secondary to osteoarthritis and/or musculoligamental spasm or strain associated with the resultant postural imbalance. The distribution of arthritic conditions was typical of that found in any large arthritis service. Patients were advised to take two tablets or capsules of the medicament, equivalent to 0.6 gm. of salicylamide, aspirin, or placebo, every four hours and returned to the clinic at intervals from one to three weeks. At the next clinic visit, the patient was questioned carefully in regard to the change in status, relief of pain, time required for relief if any did occur, duration of such relief, degree of pain, disability and joint swelling, and the occurrence of untoward reactions. Then, without the patient's knowledge, another medicament was substituted and the procedure repeated for another period. The selection of any particular medicament was based entirely on random sampling. In this manner, it was possible to compare all three medicaments in 43 subjects, and it was possible in 20 of the remaining subjects to compare at least two of the medicaments. In all, 55 subjects received S-1, 57 subjects received S-2, and 61 subjects received S-3.

Meaning of Effectiveness.—The analysis of effectiveness is based on satisfactory analgesia according to criteria published previously[4] and in essence represents a balance between analgesia and occurrence of untoward reactions or intoxication. From a clinical point of view, a satisfactory analgesic should be capable of alleviating a painful condition for a minimum period of two to three hours without the occurrence or overshadowing of the analgesic response by untoward reactions. Thus, the drug may result in complete relief of pain, but, if nausea and vomiting occur persistently, the analgesic response is not considered to be satisfactory.

Results in Terms of Effectiveness.—The results in terms of effectiveness and untoward reactions for the three preparations are presented in table 1. The over-all effectiveness for each agent appeared to be the same. Thus, S-1, S-2, and S-3 gave satisfactory analgesia in 56.3, 59.6, and 60.6% of the patients respectively.

From the Department of Medicine, New York Medical College, and the arthritis services of Flower and Fifth Avenue Hospitals and Welfare Dispensary (Metropolitan Division).

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In terms of toxicity, we noted untoward reactions in 14 out of 55 patients with S-1, for an incidence of approximately 25%. This took the form primarily of gastrointestinal disturbances, with nausea, eructations, heartburn, and epigastric distress as the major reactions. S-2 resulted in 10 out of 57 patients having reactions, for an incidence of approximately 17%. With this drug, it was noted that there were just as many patients complaining of headaches and dizziness as gastrointestinal distress. With S-3, 19 out of 61 patients, or 31%, had reactions that were evenly distributed between gastrointestinal and central nervous system reactions.

Results in Terms of Preference.—In terms of comparison between medicaments and preference for any one as compared to the other two (table 2), there appeared to be a tendency to prefer S-2. There were 92 comparisons with S-1, of which 47 were with S-2 and 45 with S-3. By a statistical analysis, there was questionable significance between S-1 as compared to S-2 and no significance between S-1 and S-3; however, the 49 subjects in whom we were able to compare S-2 and S-3 significantly preferred S-2. There were 40 subjects who received all three agents. Five presented no relief with any, 9 preferred S-1, 17 preferred S-2, and 9 preferred S-3.

TABLE 1.—*Analgesic and Antirheumatic Effectiveness and Toxic Effects of Salicylamide, Aspirin, and Placebo Medication*

Medicament			Effectiveness of Analgesia					Untoward Reactions	
			Satisfactory		Unsatisfactory				
Code Under Which Administered	Drug	Patients, No.	Complete	Moderate	Slight	None	Effective Relief, %	Patients, No.	%
S-1	Aspirin	55	17	14	3	21	56.3	14	25.5
S-2	Placebo	57	17	17	8	15	59.6	10	17.3
S-3	Salicylamide	61	12	25	7	17	60.6	19	31.0

TABLE 2.—*Preference for Salicylamide, Aspirin, or Placebo Medication for Relief of Arthritic Pain*

Medicament	Compared with	Patients, No.	Preference	Significance Student "t"
Aspirin (S-1)	Placebo (S-2)	47	24 Preferred S-2 15 Preferred S-1 8 No preference	2.12
Aspirin (S-1)	Salicylamide (S-3)	45	20 Preferred S-3 17 Preferred S-1 8 No preference	0.75
Placebo (S-2)	Salicylamide (S-3)	49	26 Preferred S-2 14 Preferred S-3 9 No preference	2.70

TABLE 3.—*Analgesic and Antirheumatic Effectiveness and Toxic Effects of Salicylamide, N-Acetyl-p-Aminophenol, and Placebo Medication*

Medicament			Effectiveness of Analgesia					Untoward Reactions	
			Satisfactory		Unsatisfactory				
Code Under Which Administered	Drug	Patients, No.	Complete	Moderate	Slight	None	Effective Relief, %	Patients, No.	%
9-96	*N*-Acetyl-*p*-Aminophenol	57	9	23	4	21	56.1	13	22.8
9-97	Salicylamide	53	16	14	8	15	56.6	11	20.7
9-98	Placebo	57	9	24	7	17	57.8	9	15.8

COMPARISON WITH *N*-ACETYL-*p*-AMINOPHENOL

A similar blindfold study, but comparing salicylamide, *N*-acetyl-*p*-aminophenol, and placebo medication, was made a second time, using the blindfold technique. Results of this study are given in table 3. Again we noted a similar result of placebo and salicylamide therapy.

RELIEF OF VARIOUS CONDITIONS

In the third study, wherein we compared the three drugs for relief of a wide variety of medical and surgical conditions where the pain was mild to moderate in severity, we were able to observe 46 subjects. All patients received all three drugs at intervals during the day, depending upon the response and occurrence of untoward reactions. The choice of the initial drug was made entirely by random sampling so that the effects of prior medicaments would not influence the results of subsequent medicaments. It was noted (table 4) that S-1 resulted in relief in approximately 60% of the patients, S-2 in approximately 47%, and S-3 in 27%. There were 16 patients who presented no relief with any of the drugs. With the exception of the 16 patients who failed to respond and 2 patients who presented no preference, it was noted that 15 patients preferred S-1, 9 preferred S-2, and 4 preferred S-3. Upon statistical analysis, there was no significance to the preference of S-1 over S-2 or over S-3, but there was considerable significance of S-1 over S-3.

RELIEF OF ARTHRITIC CONDITIONS

The effectiveness of salicylamide for the treatment of arthritic conditions was also evaluated, with full knowledge of what was administered. After the treatment of 20 ambulatory patients for a period of several days to 10 weeks, the results were so unfavorable for salicylamide that this phase of the investigation was discontinued. Only 7 out of 20 patients presented any improvement. In two patients, this may have been the natural course of the condition. In two other patients, the relief was slight and therefore insignificant. In only three patients were the results considered a satisfactory analgesic response.

EFFECT OF DOUBLE BLINDFOLD TECHNIQUE

Since the double blindfold technique indicated on two studies that aspirin and *N*-acetyl-*p*-aminophenol are also as effective as a placebo, which is exactly opposite to our experience with these drugs, and since the unsatisfactory analgesic response of salicylamide was demonstrated by the previous study, we seriously doubted whether the double blindfold technique was a valid method of distinguishing between the effectiveness of analgesic agents. It was therefore decided to reevaluate the other drugs with full knowledge of what was to be administered. In addition, we attempted to evaluate the reverse possibility, wherein the patient was psychologically prepared, and thus influence the results for greater effectiveness. Utilizing the powers of suggestion, we gave the patients a known medicament and informed them that this medicament was new, very powerful, and the best treatment for the pain of arthritis that could possibly be obtained. The results as noted in table 5 suggest that the double blindfold technique appears to "level off" the effectiveness of analgesic agents up to 50 and 60%, regardless of their potency. Weak or placebo medicaments show up more favorably than when studied as such, and effective medicaments appear not as effective as they should be.

TABLE 4.—*Analgesic Effectiveness of and Preference for Salicylamide, Aspirin, and Placebo Medication for Hospitalized Patients*

Effectiveness		Preference		
Medicament	Effective Relief, %	Medicament	Compared with	Significance Student "t"
Aspirin (S-1)	60.0	Aspirin (S-1)	Placebo (S-2)	1.78
Placebo (S-2)	46.6	Aspirin (S-1)	Salicylamide (S-3)	4.30
Salicylamide (S-3)	26.6	Placebo (S-2)	Salicylamide (S-3)	2.13

TABLE 5.—*Relief of Arthritic Pain*

				Untoward Reactions	
Medicament	Patients, No.	Satisfactory Analgesia	Effectiveness, %	Patients, No.	%
Aspirin	87 128	45 68	51.7 53.1	24 30	27.5 23.4
Placebo	41	19	46.3	5	12.2
Placebo (patients psychologically prepared)	43	15	34.9	9	20.9
N-Acetyl-*p*-Aminophenol	123	81	65.8	19	15.0
Formula A (Anacin type)					
Double blindfold	94	60	61.8	30	31.9
Patients psychologically prepared	43	20	46.4	12	27.9

COMMENT

Before any specific agent is classified as an effective drug to relieve pain or alleviate a musculoskeletal condition, the method for determining the effectiveness in these regards must be carefully considered. Comparative testing of drugs possessing the approximate potency of salicylate are difficult to evaluate because the response elicited by their use is not as dramatic as the response after the administration of morphine or meperidine. Techniques have therefore been devised to evaluate such agents presumably without prejudice on the part of the investigator. The double blindfold technique, in which the medicaments are prescribed in a code form without the investigator or the patient being aware of what is prescribed, has been recommended by many as an answer to this problem. It has been our experience that this technique may be of value for short-term experiments, especially in hospitalized or bedridden patients, but, with prolonged administration, regardless of the ambulatory or hospitalized state of the patient, the results are confusing and misleading.

It is with surprise that we note the same effectiveness for placebo medicaments, known effective analgesics, and unknown drugs. Regardless of the medicament administered, we always achieve the same result. There appears to be an incidence of effectiveness that occurs with all medicaments with the double blindfold technique, regardless of what preparations are investigated. Placebo medicaments, which under the usual methods of study[4] result in an effectiveness of approximately 40%, will show with the double blindfold technique an effectiveness of approximately 60%. On the other hand, preparations that in our experience will result in an effective response in over 60% of the patients will have a lowering of this response to approximately 60% when studied by the double blindfold technique. This "leveling off" of incidence of effectiveness will erroneously condemn many drugs as ineffectual. Thus, aspirin, if studied under such a regimen, would be rejected because the same response was achieved with placebo medication. Since this is contrary to the universal experience with salicylates, we seriously questioned the validity of the double blindfold technique for the evaluation of such drugs. We were, therefore, not impressed by the similarity of response of salicylamide and placebo therapy, and further studies had to be devised to compare the effectiveness of salicylamide and aspirin. We find that a single blindfold technique, where the physician is aware of the medicament to be used, gives the most useful data for analysis. When large numbers of patients are treated and the over-all responsiveness to a placebo is known, then the unknown drug can be administered to the same or a different group of patients for its own incidence of effectiveness. Whether the two drugs have to be studied in the same patient is open to dispute. First of all, conditions existing at the time each drug is administered may be entirely different. Secondly, the subsequent administration of the medicament may be influenced by the effects achieved previously. Thus, in order to compare an unknown drug to a placebo or standard analgesic agent, it is best to do so by means of alternate patients or large groups of patients treated with each agent alone. Statistical evaluation will then determine how much more effective the unknown is in relation to the placebo or standard medicament. The question may arise as to the prejudice and responsiveness of the patient to suggestion. We found that the single blindfold technique was not influenced by the suggestibility of the patient. An attempt to increase the effectiveness of the placebo by psychologically preparing the patient resulted in no greater effectiveness. On the other hand, the incidence of untoward reactions may be altered. The suggestion that a "more potent" drug is being used and emphasis as to what to anticipate from the medicament may result in a higher incidence of toxic reactions. This experience of obtaining approximately 60% effectiveness for both the placebo medicament and other agents under investigation is not unique for analgesic testing. Similar results have been reported for drugs studied for the anginal syndrome [5] and for mephenesin.[6]

An explanation for this "leveling off" effect of the double blindfold method is not at hand. Speculation as to reasons for this interesting phenomenon does not solve the problem that exists. The subjectivity of the patient's complaints warrants a careful analysis of the techniques involved in the investigation of therapeutic measures recommended for their alleviation. When these complaints are of a chronic nature, the study should be so designed as to answer this question: Is the therapy effective for a prolonged treatment of the condition? The single administration of a drug or its use for fixed intervals of a few days or even a few weeks does not reflect the clinical aspects for satisfactory control of the symptom. Although the double blindfold technique is helpful in a short-term experiment, as was noted in our study on hospitalized patients, it is of no value when the same medicament is evaluated for the prolonged therapy of the same symptom.

CONCLUSIONS

Salicylamide is not an effective analgesic or antirheumatic medicament in man. The double blindfold technique as applied to an evaluation of analgesic and antirheumatic drugs in ambulatory patients does not show any differentiation between placebo therapy or effective medicaments. Each investigation group should determine the responsiveness to placebo medication for its particular type of patients and use these data as a control for evaluation of unknown analgesic or antirheumatic drugs.

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CLINICAL NOTES

RELIEF OF AMBLYOPIA IN PITUITARY APOPLEXY BY PROMPT SURGICAL INTERVENTION

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The objective of neurosurgical attack upon tumors of the pituitary gland has always been the prevention of impairment or loss of vision from gradual compression of nearby optic pathways. Attention has recently been called to the occasional sudden expansion of a pituitary tumor by hemorrhage within it causing sudden amblyopia among other acute symptoms. The first comprehensive article on this subject is by Brougham, Heusner, and Adams,[1] which appeared in 1950. Further reports are by Fountain, Baird, and Poppen,[2] in 1951, and List, Williams, and Balyeat,[3] in 1952. In these previously reported cases, the vision in patients who survived was generally unimproved from the state induced by the initial hemorrhage into the tumor. Operative intervention did not occur or was frequently delayed because of difficulty in diagnosis and/or the poor general condition of the patient. Two recently encountered experiences with patients who have had acute, massive hemorrhages into pituitary adenomas producing amblyopia are reported to illustrate the gratifying effects of prompt operative intervention in restoring vision. In one instance modern endocrine therapy made prompt surgical intervention possible, and this latter experience further suggests that the objective of decompressive surgery may be the preservation of endocrine function as well as the preservation of vision.

REPORT OF CASES

CASE 1.—A 39-year-old white man was first admitted to the Graduate Hospital on April 25, 1953, with a one year history of left frontal headaches and episodes of pain in the left eye radiating to the left ear and jaw and left side of the neck. The latter came on each evening and awakened him from sleep early each morning. Three weeks prior to admission to the hospital his symptoms had become more intense. In the preceding two years he had noted distortion of his left field of vision and difficulty in using his left eye for reading, losing the beginning of each sentence. The patient had five children, the youngest being 10 months old. He denied any sexual difficulties at any time.

His blood pressure was well maintained throughout his hospital stay at 110/75 mm. Hg. A complete blood cell count and urinalysis were both normal, as were his fasting blood sugar and blood urea nitrogen levels. The visual acuity through a pinhole was $6/6 + 4$ in his right eye and 6/12 in the left. The optic fundi showed slight blurring of the nasal margins of the disks without measurable elevation, and the left disk was slightly paler than the right. Visual fields examination (fig. 1*A*) demonstrated a left temporal hemianopia with a full field for the right eye. An x-ray of the skull revealed ballooning of the sella turcica,

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[1] Brougham, M.; Heusner, A. P., and Adams, R. D.: Acute Degenerative Changes in Adenomas of the Pituitary Body—with Special Reference to Pituitary Apoplexy, J. Neurosurg. 7:421-439, 1950.

[2] Fountain, E. M.; Baird, W. C., and Poppen, J. L.: Pituitary Apoplexy: A Report of 3 Cases with Recovery, Lahey Clin. Bull. 7:117-122, 1951.

[3] List, C. F.; Williams, J. R., and Balyeat, G. W.: Vascular Lesions in Pituitary Adenomas, J. Neurosurg. 9:177-187, 1952.

the anteroposterior diameter measuring 20 mm. and the vertical diameter 15 mm. The anterior clinoids were slightly sharpened. A diagnosis of chromophobe adenoma of the pituitary was made, and deep x-ray therapy was started, with visual fields being tested daily.

By May 8, 1953, the patient's headaches had disappeared, his visual acuity was well maintained, and his left visual field was perhaps slightly expanded. He was, therefore, discharged from the hospital and was to receive x-ray therapy three times weekly as an outpatient. From April 29 to May 13, 1953, 1,840 r was delivered into the tumor. On May 15, 1953, at 2 a. m. he was awakened from sleep by severe headache and vomiting, and he complained that he was completely blind in the left eye. At 7 a. m. I was called, and the patient was brought by ambulance 11 miles to the hospital. On arrival his vital signs were normal except for a temperature of 99.3 F. Blindness of the left eye was confirmed, the pupil failing to react to light. He was taken directly to the operating room, and a left transfrontal craniotomy commenced before 10 a. m. of the same day. Nitrous oxide, oxygen, and ether anesthesia was administered endotracheally after thiopental induction. After elevating the left frontal lobe, a bluish tumor was seen emerging beneath the chiasm and placing severe tension on the left optic nerve. The capsule was incised, and dark, old blood oozed out under pressure together with necrotic appearing tissue. The contents of the tumor capsule were thoroughly aspirated, sufficient amounts of tumor being preserved for histological examination. All tension on the optic chiasm and nerves was relieved. Microscopic examination of the tissue revealed a typical chromophobe adenoma of the pituitary gland.

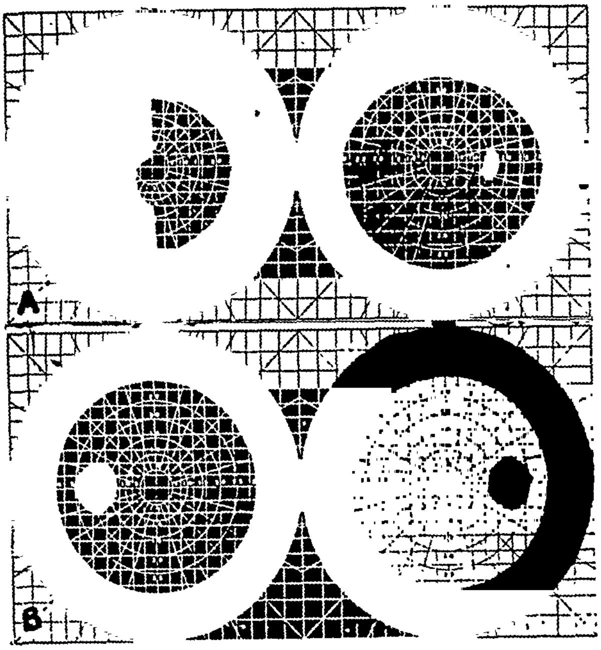

Fig. 1.—Visual fields of the patient in case 1, *A*, three weeks preoperatively, and *B*, one year postoperatively (modified Bjerrum screen [Berens]).

The patient's convalescence was uneventful, and an examination of his optic fundi May 21, 1953, revealed sharply outlined optic disks. The visual acuity of the right eye was 6/6 and of the left eye 6/12, and the visual fields showed marked improvement as compared with his preoperative examination. The patient was discharged from the hospital on May 27, 1953. By June 12, 1953, visual acuity in the left eye had improved. Indeed, acuity was 6/5 in both eyes, with considerable widening of the left temporal field. The patient returned to work on July 1, 1953, and has not missed a day since. Over the following year the visual field of both eyes returned to normal (fig. 1*B*), and his activity was completely normal, including sexual relations, without benefit of endocrine replacement therapy.

CASE 2.—A 31-year-old white man, married 10 years, with one 7-year-old child, was admitted to the Albert Einstein Medical Center, Southern Division, April 29, 1954. The patient's medical history began five years previously when he first noted marked asthenia, loss of libido, and loss of axillary, pubic, and facial hair. He was told he had an anemia, and treatment, directed chiefly toward his anemia, was given by numerous physicians until he was admitted to a hospital in a neighboring city Jan. 25, 1954, because of continuing loss of strength. At that time his blood pressure was normal and eyegrounds were also thought to be normal. Visual fields were reported to be full to confrontation. The left testis was softened and atrophic, the right testis was smaller and softer than normal, and the prostate was hardly palpable rectally. Pubic and facial hair were markedly diminished, and the axillary hair was practically nonexistent. Hemoglobin determinations varied from 12.5 to 12.9 gm. per 100 cc. of blood and the red blood cell count varied from 3,750,000 to 4,300,000 cells per cubic millimeter. A basal metabolic rate was -21, and total cholesterol content was 223 mg. per 100 cc. A skull x-ray revealed a markedly enlarged sella turcica. A diagnosis of chromophobe adenoma of the pituitary was made. The patient was discharged Feb. 3, 1954, with the intention of starting endocrine replacement therapy. He was readmitted Feb. 8, 1954, to the same hospital with complaints of chest pain, fever, and vomiting of 48 hours' duration. Upon his second admission his blood pressure was 78/60 mm. Hg. After several liters of saline solution intravenously given he improved markedly. However, his anemia now appeared more marked, hemoglobin level being 11.7 gm., and there were only 3,500,000 red blood cells per cubic millimeter. He was placed on therapy with desoxycorticosterone acetate, 5 mg. twice daily, testosterone, 50 mg. three times weekly, and hydrocortisone, 20 mg. twice daily. He made a prompt recovery and was discharged Feb. 25, 1954, on a regimen of thyroid, ½ grain (30 mg.), hydrocortisone, 20 mg., and ferrous sulfate, 90 mg. daily, and testosterone, 25 mg. three times weekly.

He was able to resume his sexual life and seemed to be getting along until April, 1954, when he complained of visual difficulties, and for the first time on April 9, 1954, visual fields were done and an incomplete bitemporal hemianopia was noted (fig. 2*A*). On April 27, 1954, he was seized with severe headache, vomiting, and total blindness. He was admitted to the neurosurgical service of the Albert Einstein Medical Center, Southern Division, April 29, 1954, at 10 a. m.

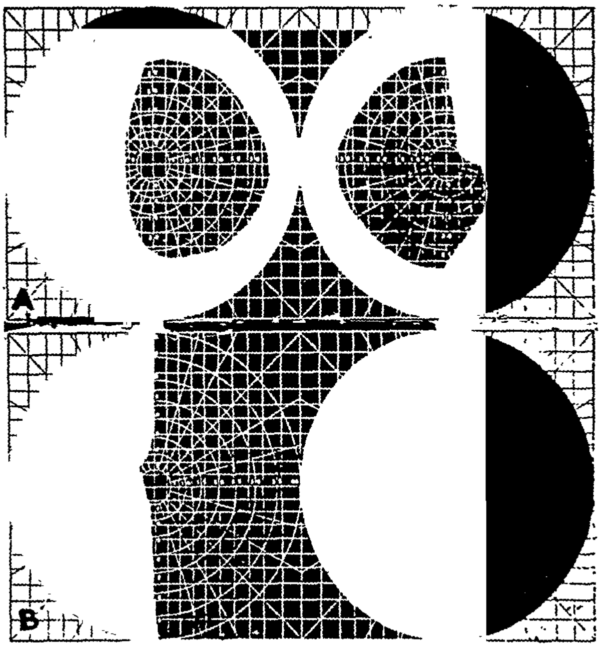

Fig. 2.—Visual fields of the patient in case 2, *A*, three weeks preoperatively, and *B*, four and a half months postoperatively (modified Bjerrum screen [Berens]).

His blood pressure on admission was 136/76 mm. Hg, pulse 128, respiration 28, and rectal temperature 106.2 F. The patient was conscious and oriented, but totally blind. The optic disks had a yellowish color, and the margins were distinct. The patient's neck was slightly rigid, and a mild bilateral Kernig's sign was present. There were no other neurological findings. Electrolyte studies revealed the plasma sodium level to be 131 mEq. per liter and the potassium level 3.8 mEq. per liter. The red blood cell count was 5,460,000 per cubic millimeter, with 15.6 gm. of hemoglobin per 100 cc.; the white blood cell count was 23,700 per cubic millimeter, with 53% polymorphonuclear cells and 33% lymphocytes. The blood pH was 7.29.

Operative intervention was delayed in an effort to control the fever. Ice packs were applied, intravenous infusion of saline solution was started, and 100 mg. of cortisone was given intramuscularly. By 2 p. m. of the day of admission the patient's temperature had come down to 103 F, but no blood pressure was obtainable. The patient remained conscious but was very dull and somnolent. Phenylephrine (Neo-Synephrine) hydrochloride, 2.5 mg. in 5% glucose in isotonic sodium chloride solution, was given intravenously, and 5 mg. of desoxycorticosterone acetate was given intramuscularly. The patient also was given 500 cc. of whole blood. Administration of the desoxycorticosterone was repeated in two hours and the intravenous administration of phenylephrine continued throughout the night. Administration of the cortisone was continued in 100 mg. doses every six hours. The patient continued to vomit small amounts throughout the first 24 hours in the hospital. By the next morning, April 30, 1954, the patient's temperature was 100 F rectally and the systolic blood pressure was well maintained at between 100 and 110 mm. Hg.

The patient was then taken to the operating room, and a right transfrontal craniotomy was carried out with the patient under local anesthesia. Just as operation began, the blood pressure was reported at 180/110 mm. Hg. The right frontal lobe was elevated, and a large intrasellar tumor was seen severely compressing the optic chiasm and nerves. The capsule was very tough and incision with a knife was required to open it. A good amount of dark brownish fluid escaped, and this relieved the pressure on the optic nerves and chiasm. The contents of the tumor were thoroughly aspirated, several good pieces being preserved for biopsy. While the scalp was being repaired, blood pressure was reported to be 260/180 mm. Hg. In fear of the consequences of this hypertension, 500 cc. of blood was removed rapidly from a vein. At the completion of the venesection, the blood pressure was unobtainable and, therefore, 150 cc. of blood was returned to the patient, with the blood pressure rising to 170/100 mm. Hg. Total elapsed operating time was 80 minutes. Microscopic examination of the tissue removed revealed it to be a chromophobe adenoma.

The patient was maintained on cortisone therapy, 100 mg. every six hours, and by the next morning, May 1, his temperature was 101 F rectally, he was fully conscious, his blood pressure was 130/80 mm. Hg, pulse rate 80, plasma sodium level 140 mEq. per liter, and potassium level 4.5 mEq. per liter. He definitely could see at least finger movements with his left eye. His improvement was continuous except that it was clear by the second postoperative day that he had diabetes insipidus, excreting as much as 7,600 cc. of urine in a 24 hour period during the next week. This was controlled by vasopressin (Pitressin) tannate in oil, 0.5 cc. given intramuscularly every other day. Cortisone therapy was reduced progressively, and, by the fourth postoperative day, the patient was being maintained with 25 mg. given four times daily. On May 7, 1954, the visual acuity of the left eye was 20/70 and there was a complete temporal hemianopia. The right eye was completely blind. The patient was ambulatory by the fourth postoperative day and was discharged from the hospital on May 13, maintained with cortisone therapy, 25 mg. orally twice daily, methyltestosterone sublingually, 10 mg. three times daily, and vasopressin tannate in oil, 0.5 cc. every other day. On June 7, 1954, the dose of vasopressin was reduced to an injection every third day and administration of testosterone cyclopentopropionate, 300 mg. to be given intramuscularly every 30 days, was started. X-ray therapy to the sella turcica was begun and completed by July 16, 1954, and a total of 3,000 r was delivered into the tumor. The x-ray therapy made the patient sluggish and tired, and thyroid, 1 grain (60 mg.) daily, was prescribed.

In September, 1954, vasopressin therapy was discontinued entirely, and no symptoms of diabetes insipidus have reappeared. The right eye has remained blind, but vision has improved in the left eye to 20/40, with a complete temporal hemianopia persisting in this eye (fig. 2*B*). The patient feels well, is energetic, and reports sexual relations are entirely normal. He began working for the first time Oct. 1, 1954, as an apartment house maintenance worker and has been regularly employed to the time of this report. Preoperative and postoperative endocrine treatment of this patient was managed by Dr. Norman G. Schneeberg.

COMMENT

Disability from gradual compression of nervous tissue in many instances can be overcome by delayed surgical decompression. Equal impairment of function following acute compression, on the other hand, appears irreversible in a matter of hours. Such experience in compression of the spinal cord is common to all surgeons. It may be roughly stated that decompression of nervous tissue may be delayed with any hope of recovery of function only as long as it took for the disability, or any segment of that disability, to appear. It would seem the optic chiasm and nerves are no exception to this experience. It may further be pointed out that with modern, powerful endocrine agents, neurosurgeons should be more courageous in attacking pituitary tumors, which cause the patient to be very ill. It is the more true since undoubtedly expanding neoplasms impair the function of remaining normal endocrine tissue, which could recover and help protect the body if relieved of compression.

SUMMARY

In two cases of acute hemorrhage into a pituitary adenoma amblyopia resulted. In addition, the hemorrhage in one patient caused an acute hypothalamic and Addisonian crisis. Prompt surgical intervention (within eight hours in one patient and three days in the other) permitted complete recovery of vision in one patient and recovery of useful vision in the other. Surgical decompresson did relieve one patient of a severe endocrine crisis and hypothalamic dysfunction by removing pressure from remaining normal pituitary tissue and the hypothalamus.

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RECOGNITION OF BILIARY TRACT OBSTRUCTION WITHOUT JAUNDICE

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Obstructive jaundice and the use of liver function tests for its diagnosis are widely understood. Biliary tract obstruction in the absence of jaundice, however, is rarely recognized or even thought of, even though it is of relatively common occurrence and can be detected frequently by the application of appropriate liver function tests. The identification of obstructive jaundice depends on the presence of an increased level of direct-acting bilirubin in the serum or bilirubinuria and abnormal results in tests of biliary tract patency, that is, an elevated serum alkaline phosphatase level and/or cholesterol in the presence of tests of normal parenchymal

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function, such as the cephalin-cholesterol flocculation and thymol turbidity tests.

Partial obstruction of the biliary tract may produce the same pattern of liver function tests, even though the serum bilirubin level is not elevated. In addition, the sulfobromophthalein test, which in the presence of jaundice provides no further information, may be used to advantage in that its results are frequently abnormal in this situation. The pattern of liver function tests in partial biliary obstruction without jaundice thus consists of elevation of the serum alkaline phosphatase activity and abnormal sulfobromophthalein retention, with normal cephalin-cholesterol flocculation and thymol turbidity tests. The most frequent causes of partial biliary tract obstruction without jaundice are space-occupying lesions within the liver. Elevation of the serum alkaline phosphatase level without jaundice has been reported in metastatic carcinoma.[1] Sulfobromophthalein retention has likewise been observed.[2] Gutman [1b] found the serum alkaline phosphatase level increased without jaundice in liver abscesses of varying etiology, and sulfobromophthalein retention, as well as an increased alkaline phosphatase level, has been described in amebic abscess of the liver.[3] Echinococcosis of the liver has been reported to produce elevation of the alkaline phosphatase level without jaundice.[4]

Liver Function Tests in Intrahepatic Lesions

Case No.	Serum Bilirubin (Normal= <1 Mg.)	Cephalin-Cholesterol Flocculation (Normal= Negative 1+)	Thymol Turbidity (Normal= <4 Units)	Alkaline Phosphatase (Normal= <9 Units)	Sulfobromophthalein Retention (Normal= <5%)	Diagnosis
1	0.3	Negative	1.0	45.0	27.0	Carcinoma of colon
2	0.6	Negative	4.4	11.0	12.5	Carcinoma of stomach
3	0.6	Negative	1.3	20.0	11.0	Carcinoma of colon
4	0.5	Negative	1.6	31.0	17.0	Carcinoma of pancreas
5	0.4	Negative	1.2	15.3	12.0	Carcinoma of pancreas
6	0.4	Negative	3.0	23.0	34.0	Carcinoma of pancreas
7	0.1	Negative	7.0	14.1	15.0	Amebic abscess
8	0.1	Negative	4.0	26.0	14.0	Amebic abscess
9	0.3	Negative	3.5	18.0	6.0	Amebic abscess
10	0.5	Negative	1.3	6.8	29.0	Amebic abscess
11	0.4	Negative	1.8	18.0	35.0	Amebic abscess
12	0.2	Negative	7.4	8.6	1.0	Amebic abscess
13	5.0 (I.I.)*	4+	5.0	20.3	12.0	Carcinoma of pancreas

* Icteric index.

MATERIAL AND METHOD

The results of the liver function tests in a group of patients with intrahepatic lesions are presented in the table. These patients were selected from a much larger group strictly on the basis of absence of jaundice and on the completeness of the liver function tests performed—not on the basis of their results. The presence of an intrahepatic lesion was established by clinical findings plus liver biopsy, laparotomy, autopsy, or response to specific therapy. Although hepatic enlargement was clinically evident in most patients, the liver was not palpable in cases 6 and 12 (see table). The required liver function tests were (1) quantitative serum bilirubin or icteric index; (2) cephalin-cholesterol flocculation; (3) thymol turbidity; (4) serum alkaline phosphatase (Shinowara's method)[5] in which a level of 9 units is said to be the upper limit of normal; and (5) a sulfobromophthalein test in which 5 mg. per kilogram of body weight is administered and the retention after 45 minutes determined.

RESULTS

Results of the cephalin-cholesterol flocculation test were normal in all but one patient (table, case 13). The results of the thymol turbidity test were likewise normal in most instances, cases 7 and 12 showing slightly abnormal values (see table). The alkaline phosphatase level was distinctly elevated in all but two patients (table, cases 10 and 12), and abnormal sulfobromophthalein retention was likewise present in all but two patients (table, cases 9 and 12). Although there was no consistent quantitative relationship between the degrees of abnormality of sulfobromophthalein retention and alkaline phosphatase activity, in most instances, when one was abnormal, the other was also. Patients in cases 9 and 10 (see table) were exceptions, however, in that one test was normal and the other abnormal in both patients.

COMMENT

The results of these tests in this group of patients indicate partial obstruction of the biliary tract without diffuse parenchymal disease. That the alkaline phosphatase test is more sensitive in determining obstruction than the serum bilirubin test was shown by Freeman, Chen, and Ivy,[6] who produced striking rises in the alkaline phosphatase level without increases in the serum bilirubin level by ligating a portion of the intrahepatic bile ducts in experimental animals. The most plausible explanation for this is that bilirubin, although returned to the blood after passing through the liver cells in the obstructed area, is easily excreted by the kidney and a normal serum level thus maintained, while phosphatase, which cannot be excreted by man and most animals, accumulates in the blood.[1b] The sulfobromophthalein test likewise will detect obstruction before the serum bilirubin level rises, since it is a loading test requiring a high degree of efficiency of hepatic parenchymal, as well as excretory, function in order that the dye be removed from the blood in the required time. Impairment of the excretory function, even though not sufficient to produce jaundice, may nevertheless result in sulfobromophthalein retention.

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[1] (*a*) Meranze, D. R.; Meranze, T., and Rothman, M. M.: Serum Phosphatase as Aid in Diagnosis of Metastasis of Cancer to Liver, Pennsylvania M. J. **41**: 1160-1164 (Sept.) 1938. (*b*) Gutman, A. B.; Olson, K. B.; Gutman, E. B., and Flood, C. A.: Effect of Disease of the Liver and Biliary Tract upon the Phosphatase Activity of the Serum, J. Clin. Invest. **19**: 129-152 (Jan.) 1940. (*c*) Bullard, R. W., Jr.: Alkaline Phosphatase and Metastatic Liver Disease, Surgery **19**: 379-382 (March) 1946. (*d*) Burke, J. O.: Serum Alkaline Phosphatase in Liver Disease: Concept of Its Significance, Gastroenterology **16**: 660-668 (Dec.) 1950. (*e*) Popper, H., and Schaffner, F.: Hepatic Tests, in Advances in Internal Medicine, vol. 4, Dock, W., and Snapper, I., editors, Chicago, Year Book Publishers, Inc., 1950, pp. 357-443.

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[4] Greene, C. H.; Shattuck, H. F., and Kaplowitz, L.: Phosphatase Content of Blood Serum in Jaundice, J. Clin. Invest. **13**: 1079-1087 (Nov.) 1934.

[5] Shinowara, G. Y.; Jones, L. M., and Reinhart, H. L.: The Estimation of Serum Inorganic Phosphate and "Acid" and "Alkaline" Phosphatase Activity, J. Biol. Chem. **142**: 921-933 (Feb.) 1942.

[6] Freeman, S.; Chen, Y. P., and Ivy, A. C.: On the Cause of the Elevation of Serum Phosphatase in Jaundice, J. Biol. Chem. **124**: 79-87 (June) 1938.

The degree of obstruction occasioned by the lesion determines whether or not the tests will be revealing. Few or small lesions will not be demonstrable. Hence, normal results on tests cannot be assumed to exclude the possibility of intrahepatic disease. When this pattern does occur, however, an intrahepatic lesion may be strongly suspected. Obscure affections of the right upper side of the abdomen or lower side of the thorax may be specifically identified as being within the liver. The routine use of the discussed tests in the evaluation of patients with known gastrointestinal neoplasms will in many instances provide valuable information obtainable in no other way short of surgery. The fact that one of the tests of obstruction may be normal and the other abnormal, as in cases 9 and 10 (see table), makes it desirable to employ both the sulfobromophthalein test and the serum alkaline phosphatase determination. Also, alkaline phosphatase activity may be affected by skeletal lesions, while sulfobromophthalein retention, of course, is not.

Parenchymal diseases of the liver such as cirrhosis frequently possess an obstructive element, with consequent elevation of the alkaline phosphatase level without jaundice.[7] The tests of parenchymal function will usually be abnormal, however. In order to differentiate partial biliary obstruction from hepatocellular disease, therefore, the tests of cellular function must be done and found normal. Like all other tests, these are not infallible and an occasional instance of cirrhosis or common duct stone may produce this pattern. Also, now and then, abnormal results in parenchymal tests will be found in cases of space-occupying lesions, as in case 13 (see table). When viewed in the light of the clinical findings, however, this group of liver function tests may be of great help in detecting obscure intrahepatic biliary obstructive lesions.

SUMMARY

Abnormal test results of biliary tract patency, that is, an elevated serum alkaline phosphatase level and sulfobromophthalein retention, in the presence of a normal serum bilirubin level and normal test results of parenchymal function such as the cephalin-cholesterol flocculation and thymol turbidity tests, are strong evidences of partial biliary tract obstruction. This pattern is usually seen in cases of space-occupying lesions within the liver. The concept of partial intrahepatic biliary tract obstruction and the means of its demonstration are very useful tools in the detection of otherwise obscure or confusing lesions within the liver.

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[7] Flood, C. A.; Gutman, E. B., and Gutman, A. B.: Phosphatase Activity, Inorganic Phosphorus and Calcium of Serum in Disease of Liver and Biliary Tract: Study of 123 Cases, Arch. Int. Med. 59: 981-999 (June) 1937.

CAUSALGIA TREATED WITH CHLORPROMAZINE HYDROCHLORIDE

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We have recently used chlorpromazine (Thorazine) hydrochloride as the sole treatment in three early but typical cases of causalgia of the upper extremity with complete and dramatic remission of all symptoms of the causalgia. Insofar as we can determine these represent the first cases of causalgia treated primarily with this drug.

REPORT OF CASES

Case 1.—The patient, a 48-year-old white man, was in good health until Nov. 23, 1954, when he injured four fingers of the right hand while operating a pulley cable. He received penicillin, tetanus toxoid, and meperidine (Demerol) hydrochloride for pain soon after the accident. Inspection revealed traumatic amputation of the third and fourth fingers through the distal interphalangeal joint, traumatic amputation of the fifth finger at the level of the midportion of the distal phalanx, and an injury to the index finger consisting of a severe abrasion of all of the epidermis on its radial side and a deep undermining laceration on the radial side at the level of the proximal interphalangeal joint extending down to the lateral ligaments of the joint but not into the joint space. The patient was taken promptly to the operating room, and, under general anesthesia, the wounds were débrided. The three amputated fingers were carefully reamputated to secure satisfactory skin flaps. The digital nerves were transected but not ligated, a few vessels were ligated with 000000 plain catgut, and the skin was closed with 0000 dermal nylon. The patient was treated with penicillin and streptomycin and, except for some edema about the sutures and the moderate amount of tenderness of the fingers, the postoperative period was essentially uneventful. There was no sepsis of the wound. He was followed at frequent intervals as an outpatient. The wounds healed with some spreading of the incision following early active exercises under running hot water at home. Since he appeared to have some residual stiffness, even on this regimen, on Dec. 15, 1954, he was started on therapy with daily paraffin baths and assistive exercises in the department of physical medicine. With this motion of the hand improved considerably, and on Dec. 27, he was released for work. He returned on Jan. 1, 1955, complaining that he was unable to work because of pain in the stumps of the fingers on manipulation of levers. It appeared that during the preceding week or 10 days he had developed, for the first time, a severe pain whenever the tips of the finger stumps were touched lightly. It radiated up into the forearm as far as the elbow but did not follow the characteristic course of any of the sensory nerves. It was of a diffuse but severe burning nature. This pain was also experienced on exposure of the hand to cold. Firm palpation of the stumps of the fingers revealed little tenderness and did not reproduce pain. Light touch, especially stroking, of the ends of the fingers caused the patient to have paroxysms of pain and to "guard" his hand quite characteristically. He also stated, at this time, that he had had to change his sleeping habits, keeping his hand outside the cover to avoid it being brushed lightly by the sheet. It was thought that the patient had an early but typical case of causalgia, and he was presented for discussion at the Acuff Clinic staff conference. The diagnosis of causalgia was concurred in, and it was suggested that before sympathetic blocks were tried, the patient be treated with chlorpromazine hydrochloride. Therapy was started on Jan. 7, in a dosage of 25 mg. four times daily. The patient was seen again on Jan. 14. He had been dramatically and completely relieved of all symptoms referable to the causalgia. There was still the same slight tenderness of the stumps of the fingers on firm pressure but light touch was no longer painful. Chlorpromazine therapy in the same dosage was main-

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From the Surgical Service, the Acuff Clinic.

tained for three weeks, following which time it was discontinued. The patient returned to his job in the meanwhile and continued to work with no symptoms. He has been followed periodically since that time and has developed no evidence of recurrence of the causalgia.

Case 2.—A 51-year-old white man sustained a crushing injury to the left hand on Dec. 29, 1954. The skin was lacerated approximately three-fourths the circumference of the thumb, being incomplete only on the radial aspect. There was complete anesthesia of the distal portion of the thumb with a compound comminuted fracture of the proximal phalanx. The flexor and extensor tendons were intact. The wound was thoroughly cleansed, and the soft tissue was sutured under local anesthesia. The thumb was splinted, and the patient was treated with antibiotics and antitetanus serum. He was hospitalized because of severe pain and maintained on antibiotics in the hospital. On the fourth day following the injury a small wire was inserted into the distal phalanx of the thumb and traction was applied in the axis of the finger. The patient had some seropurulent drainage from the wound postoperatively and also some generalized edema of the hand and base of the thumb. The cast and pin were removed on Jan. 24, 26 days following the injury, and at that time x-rays showed good early callus formation with clinical stability of the fracture. The patient had had some residual pain and tenderness in the thumb consistently but not out of proportion to the nature of the wound. About Jan. 17, the patient began having a different type of pain in the wound. Touching the tip of the finger to an object lightly, he stated, was like touching a red hot stove. The pain radiated as high as the elbow and was of a severe, burning character. It was particularly brought on by light touch. Firm pressure on the finger did not cause pain or tenderness. The patient sought to protect the hand at all times from being touched by any object and protected it from exposure to the cold by wearing a piece of cloth over it. He had also noted that the pain was set off or aggravated by loud noises and by nervous tension occasioned by the children playing around the house. It was thought that this was a typical causalgia reaction to the injury, and he was given chlorpromazine, 25 mg. a day for two days and thereafter increased to 25 mg. four times daily. He was given no other medicaments of any kind. The patient was completely relieved of the causalgic type pain after two days of chlorpromazine therapy. At the present writing the patient has been followed 36 days and has had no further evidence of the causalgia.

Case 3.—A 34-year-old white man sustained a crushing injury to the left wrist on Jan. 17, 1955. He had had no previous injury to the wrist and was seen in the Acuff Clinic soon after the injury. Examination at that time revealed superficial abrasions of the left wrist and a moderate amount of edema and tenderness over the wrist. X-rays were made, and the conventional views showed no abnormalities of the bone. The following day there was a severe degree of swelling of the left hand and wrist and the tenderness was more marked. Further x-rays were obtained, and a slight irregularity of the basilar portion of the fourth metacarpal bone was seen, suggesting an incomplete fracture. It was decided to treat the patient as though he had a fracture, and his hand and wrist were immobilized in a splint. The edema subsided satisfactorily, and the acute pain from the trauma also subsided in a few days so that it was felt he was making a satisfactory course. At one of his regular visits on Jan. 31, 1955, however, it was noted that he was complaining of more pain than usual. He stated for the first time that he had radiating pain beginning in the third and fourth fingers and shooting up the forearm to the anterior left chest. The pains would come on without motion and were very short in duration. He described them as "shooting pains." He had also been increasingly nervous since the onset of this pain and bothered by activity in the shop where he worked and by his children and in general had been quite upset for some reason. He had noted that the pain was greatly aggravated by cold. Examination on that day revealed good color in the fingers; sensation was essentially normal. There was considerable tenderness over the base of the metacarpals. There was pain on motion of the wrist in all directions. The patient held his hand in a fixed position without motion. There was no obvious attempt to protect it. It was felt that this, while not absolutely typical, was quite suggestive of an early causalgia and, in view of previous good results with chlorpromazine, it was decided to institute this therapy. Accordingly he was started on chlorpromazine therapy, 25 mg. daily initially with a gradual increase to 100 mg. daily, providing he had no ill-effects. He was given no other medicaments. On this regimen he improved remarkably in four days time. Four days after the institution of this therapy he was no longer having any significant pain in his wrist at all and was able to discard his splint. He was much less nervous, and the pain was not precipitated by noises. Chlorpromazine therapy was continued for two weeks, following which time it was discontinued, and he has had no further difficulty with the wrist suggestive of causalgic pain.

COMMENT

The first patient described had been seen previously for injury at the Acuff Clinic, and it was the impression of all examiners who had treated him that he was a stable individual with little or no tendency toward neurotic behavior in general. He tolerated the initial period of disability quite well, and it was not until he developed the causalgia that he began to show any personality changes at all. This personality change was not discovered until after he had received relief with chlorpromazine, when he volunteered the information that the pain had become so great that even the children playing at home would "get on his nerves" and aggravate the pain. This phenomenon in the causalgic state has been described repeatedly previously. It should also be emphasized that the patient was given no drugs of any kind during the trial of chlorpromazine and had not had previous sympathetic blocks. Moreover the physiotherapy was discontinued during the time of the trial of the drug. Similarly, the second and third patients described had been seen previously, and they have also been followed subsequently after the relief of the causalgic pain. There was nothing in either of these cases to suggest that the complaints were on a psychiatric basis.

Causalgia can be and frequently is a severe disabling disorder. Sympathetic block and high thoracic sympathectomy in the past have been the procedures of choice in treating it, and it has been repeatedly emphasized that treatment should be instituted early.[1] The dramatic and complete relief of this symptom following the use of chlorpromazine leads us to the conclusion that this drug warrants further study as the initial treatment for causalgic states.

Many theories as to the mechanism of the pain in causalgia have been advanced. The theory that appears more nearly to fit the observed phenomena is that sympathetic discharges originating in the midbrain are short-circuited into sensory nerves because of some obscure change that has taken place in the peripheral nerves as a consequence of the injury. The phenomenon of aggravation of the pain by emotional stimuli, loud noises, and excitement, which is well documented in cases of causalgia, fits this hypothesis well.[2] It was on this basis that the thought of a trial of chlorpromazine therapy occurred to us, since its action is at the central level. The response that these patients exhibited lends credence to this theory.

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1. Smithwick, R. H.: Medical Progress: Surgery of the Autonomic Nervous System, New England J. Med. 240: 543-551 (April 7) 1949.
2. Julian, O. C.: Symposium on Neurological Surgery: Surgery of the Sympathetic Nervous System, with Special Reference to Vascular Disorders and Painful States, S. Clin. North America 34: 1173-1188 (Aug.) 1954.

SUMMARY AND CONCLUSIONS

Three patients with early cases of causalgia following injuries to the upper extremity have been treated primarily with chlorpromazine (Thorazine) hydrochloride, with complete and dramatic relief. We believe that further trial of chlorpromazine in the treatment of causalgic states is warranted. If consistently good results are obtained under these circumstances, it would appear that a significant link has been added to the chain of evidence that the essential lesion in causalgia is central rather than peripheral.

514 W. Church Ave. (Dr. Dabbs).

SPECIAL ARTICLE

SOME OBSERVATIONS ON THE EPIDEMIOLOGY OF CANCER IN THE UNITED STATES

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When the National Cancer Institute was established as a unit of the Public Health Service in 1937 no information was available on the distribution of cancer morbidity in the population of the United States. Records of individual clinics and hospitals contained valuable information on the occurrence and treatment of cancer, but they could not be related to a population base to determine the frequency of occurrence within various subgroups of the population, which is the essence of the epidemiological method. Mortality statistics are inadequate for this purpose. Some types of cancer are more lethal than others; contrast, for example, carcinoma of the lung with carcinoma of the skin. Consequently, conclusions drawn from mortality and morbidity records will differ, not only as to frequency of the disease but also as to the tissues or organs involved.

To obtain the required data for delineating the cancer problem in the United States, the National Cancer Institute initiated in 1938 a series of cancer morbidity surveys in 10 metropolitan areas, representing different geographical regions of the United States; these were, in the North, Chicago, Detroit, Philadelphia, and Pittsburgh; in the South, Atlanta and Birmingham, Ga., Dallas, Texas, and New Orleans; and in the West, Denver and San Francisco. These same areas were resurveyed in 1947 and 1948. At the time of the resurvey the population covered was 14,600,000, approximately 10% of the total and 15% of the urban population of the United States. The 10 areas selected were believed to have superior medical and hospital facilities reasonably accessible to all groups of the population, thus minimizing the risk of understating the number of cancer cases because of underdiagnosis.[1]

The information collected on each diagnosed case was relatively simple and included date of diagnosis; age, sex, and race of patient; site of tumor origin; histological type; stage at diagnosis; method of confirmation of diagnosis; and length of patient's hospital stay. The value of these data lies not in consideration of minute clinical detail but in reconstructing the broad pattern of cancer incidence. Contrary to the practice of some investigators, the analysis was not restricted to cases with microscopically confirmed diagnoses (77% of all reported cases). Whether or not a specific diagnosis is confirmed by microscopic examination depends on a variety of factors, including the accessibility of the tissue affected. Consequently, microscopically confirmed cases represent a selected segment of all diagnosed cases and may be unrepresentative of all cases in the population with respect to factors such as primary site, stage at diagnosis, and age of the patient. If the data are restricted to a selected series of cases, generalization to the total population from which they were drawn becomes very risky. In characterizing the cancer experience of a population, it is preferable to include all diagnosed cases and accept the possibility that a few cases are incorrectly classified.

The magnitude of the data collection process was on a scale unrivaled in any other country and could not have been undertaken without the wholehearted support of state and county medical societies. Special acknowledgment is due the thousands of individual physicians who generously contributed information concerning their patients. It is heartening to realize that such studies may be undertaken within the framework of the American system of medical care without breaching the traditional physician-patient relationship.

MAGNITUDE OF THE PROBLEM

Illness Rates.—To measure the frequency with which cancer occurs, the number of diagnosed cases must be related to the population from which they are drawn, through the computation of rates per unit of population. Incidence was defined as the number of cases first diagnosed during the study year, per 100,000 population; prevalence as the number of persons known to have had cancer at any time during the year, per 100,000 population; and mortality as the number of deaths during the year for which the primary cause of death was cancer, per 100,000 population. In 1947, out of every 100,000 residents of the 10 survey areas, 430 had cancer at some time during the year, in 319 cancer had been newly diagnosed, and 149 died of cancer. (For simplicity, 1947 is used to identify the 1947-1948 survey data and 1937 to identify the 1937-1939 data.) Compared with 1937, the prevalence rate was 26% higher, the incidence rate was 30% higher, and the mortality rate was 19% higher. Adjustment for the changed age composition of the population indicates a residual increase in reported illness from cancer of 10% for prevalence, 14% for incidence, and 3% for mortality (fig. 1). Leukemia and Hodgkin's disease were not reported in 1937 and are excluded from the data shown in figure 1. The rates for 1947, including these two types of neoplasms, are given in table 1.

From the National Cancer Institute, U. S. Public Health Service, Department of Health, Education, and Welfare.

[1] Dorn, H. F., and Cutler, S. J.: Cancer Morbidity in the United States: I. Variation in Incidence by Age, Sex, Race, Marital Status, and Geographic Region, Public Health Monograph 29, U. S. Department of Health, Education, and Welfare, Public Health Service, 1955.

It is difficult to assess the significance of the computed increase in cancer morbidity and mortality, or to determine how much of the rise is real. Improved techniques for diagnosis have resulted in the discovery of some cases that in the past would have been missed. The number of physicians with training and experience in the diagnosis of cancer has also increased. Improved economic conditions in 1947 compared to 1937 may also have contributed. People are more likely to obtain adequate and specialized medical care during economic prosperity than during a depression period.

When adjustment is made for age, it appears that cancer is being discovered at the same rate among members of the two sexes. In 1947, the age-adjusted incidence rate for males was 331 per 100,000 and for females 330 per 100,000. In contrast, deaths due to cancer occurred at a rate of 169 per 100,000 among males, compared with a rate of 147 for females. These relationships between the incidence and mortality rates indicate that the case survival rate is lower among males. This is due mainly to the fact that a larger proportion of the cancer occurring in males originates in inaccessible sites and has a poor prognosis, such as stomach and lung cancer.

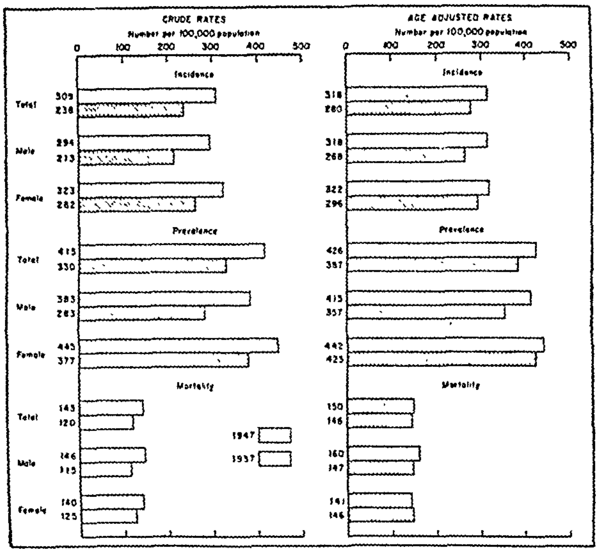

Fig. 1.—Cancer incidence, prevalence, and mortality rates per 100,000 population, by sex, 1947 and 1937.

TABLE 1.—*Cancer Incidence, Prevalence, and Mortality Rates, Including Leukemia and Hodgkin's Disease, 1947*

	Crude Rates			Age-Adjusted Rates		
	Incidence	Prevalence	Mortality	Incidence	Prevalence	Mortality
Total	319	430	149	328	441	156
Male	305	401	154	331	433	169
Female	331	458	145	330	455	147

Reported illness from cancer was substantially lower among nonwhite persons than among white. In 1947, cancer was diagnosed at a rate of 272 per 100,000 among nonwhites compared to a rate of 333 for whites (fig. 2). A large portion of this difference is due to the low incidence of skin cancer among nonwhites. When skin cancers are excluded, it becomes apparent that cancer is being diagnosed at about the same rate in white and nonwhite females. On the other hand, although exclusion of skin cancer brings the cancer incidence rates for white and nonwhite males closer together, the nonwhite rates remain 14% lower. Except for cancer of the skin, there is no reason to believe malignancies actually occur less frequently in nonwhite males. More likely a sizable proportion of cancer among nonwhite males remains undiagnosed.

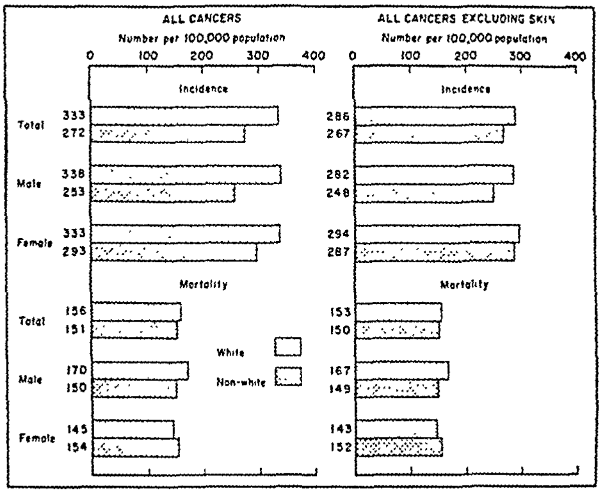

Fig. 2.—Age-adjusted cancer incidence and mortality rates per 100,000 population, by sex and color, 1947.

Cancer illness rates increase rapidly during adult life and old age. For example, the incidence rate is about 40 per 100,000 at age 25, 475 per 100,000 at age 50, and 1,900 per 100,000 at age 75. The trend, with respect to age, for cancer prevalence and mortality is essentially the same as for incidence. Although cancer morbidity and mortality generally increase with age, there is a reversal during the early years of life. The illness rates for children under 5 years of age are higher than for children between the ages of 5 and 15 (fig. 3).

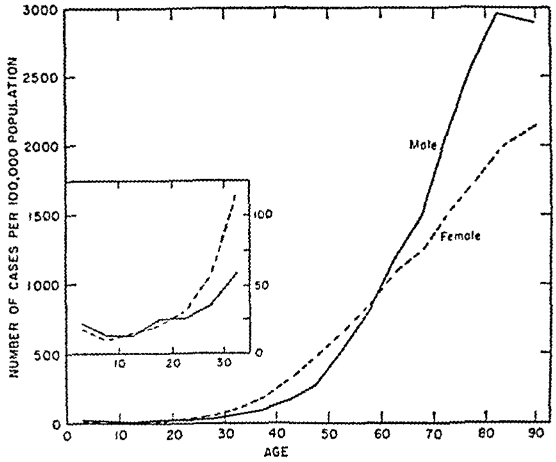

Fig. 3.—Cancer incidence rates by age and sex, 1947.

It was previously indicated that cancer is being discovered at the same rate among members of both sexes. This is not true throughout the life span. Among children under 10 years of age, the incidence of cancer is somewhat greater among males than females. From age

20 to about age 60, the incidence of cancer is higher among females. Among persons between the ages of 25 and 45 the rate in women is approximately twice that in men. The relatively high rate for women during early adult life is accounted for by the larger number of malignancies of the genital organs and breast. Cancers of the female genital organs and breast develop in persons of younger ages than the predominant forms of cancer among males. From about age 60 on, the incidence rate for males is higher than for females, and the difference increases with age.

Estimated Number of Cases.—The age-specific cancer illness rates provide a basis for estimating the number of cases of cancer in the United States and for making forecasts. Estimates for 1950 and forecasts through 1975 are given in figure 4. These estimates were made on the assumption that the age-specific rates observed in the surveyed metropolitan areas in 1947 are applicable to the total population of the United States from 1950 through 1975. This procedure may overstate the number of cases for 1950, because current evidence suggests that reported cancer illness is higher in urban than rural areas. (The number of registered cancer deaths in the United States in 1950 was 10% lower than the number expected on the basis of the cancer mortality rates in the 10 metropolitan areas.) The forecasts, however, are likely to be conservative, because past experience indicates that the rates of cancer illness are likely to continue increasing. Even if the current rates prevail, the number of persons affected by cancer will increase by more than 50% during the next 25 years, since both the total population of the United States and the proportion of persons in the older age groups are expected to increase.

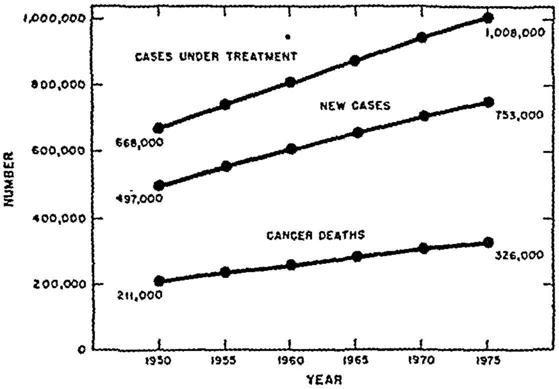

Fig. 4.—Estimated number of cases of cancer and deaths due to cancer, United States, 1950-1975.

Lifetime Probability of Developing Cancer.—Though annual incidence and mortality rates are the basic tools for describing the frequency with which this disease occurs, they are likely to be of slight interest to the individual. An individual may not be too greatly interested in the probability of developing cancer within the next year. He is usually more concerned with the chances of developing cancer between his present age and the close of his working career, at 65 or 75 years of age. This type of information is also of interest to the physician, because it provides a summary measure of the importance of a particular disease as a medical, social, and economic problem. The probability of developing cancer during various intervals of the lifespan may be computed by standard actuarial methods that need not be elaborated on here.

Under prevailing conditions of mortality from all causes and of cancer incidence, 32 out of every 100 newborn children may be expected to develop cancer at some time during their lives. The risk of developing cancer during the early part of the lifespan is quite low—3 out of 100 newborn children may be expected to develop cancer by age 45. Conversely, the risk of developing cancer during old age is high. Among persons surviving to age 65, 26 in 100 may be expected to develop cancer during their remaining years of life (table 2). It is of utmost importance for the physician to keep the possibility of cancer in mind in dealing with elderly patients.

TABLE 2.—*Percentage of Persons Expected to Develop Cancer During Future Lifetime**

	Beginning at		
	Birth	Age 45	Age 65
By age 20	0.3	..	..
By age 45	3	..	..
By age 65	14	13	..
By age 75	23	23	13
During future lifetime	32	32	26

* Based on cancer incidence rates in 10 metropolitan areas in 1947 and the 1950 United States life table.

Women are more likely to develop cancer sometime during their lives than men; white persons are more likely to develop cancer than nonwhite persons (table 3). These differences result from the interplay of two factors: the risk of developing cancer during successive age intervals and the average number of years persons in each color-sex group can expect to live. Although the cancer incidence rate for white men is slightly higher than for white women, 31% of newborn white male children are expected to develop cancer during their lifetime, compared with 36% of newborn white female children. The difference is due primarily to the fact that white women can expect to live an average of 72.4 years, compared to 66.6 for white men.

TABLE 3.—*Lifetime Probabilities of Developing Cancer, Age-Adjusted Cancer Incidence Rates, and Average Life Expectancy, by Color and Sex*

Color and Sex	Lifetime Probability of Developing Cancer, %	Age-Adjusted Cancer Incidence Rates *	Average Life Expectancy, Yr.
White men	31	338	66.6
White women	36	333	72.4
Nonwhite men	17	253	59.2
Nonwhite women	22	293	63.2

* Per 100,000 population.

The probabilities, for white men and women, of developing cancer at various sites are given in table 4. In men, the risk of developing cancer of the digestive system is dominant, with a lifetime probability at birth of 10.3 in 100. In women, the risk of developing cancer by age 65 is highest for the genital organs and breast. However, the risk of developing cancer of the digestive system after age 65 increases so rapidly that the digestive system outranks the genital organs and breast as a cancer risk in over-all lifetime probability. In both men and women, the probability of developing cancer of the digestive system from age 65 on is substantial, 9.9 per 100 men and 8.4 per 100 women aged 65. It is of interest to note that the probability of developing leukemia during childhood (by age 15) is less than 1 in 1,000 for both male and female children.

It is obvious that the probability of surviving to a specified age is affected by the risk of dying from cancer. Further insight into the magnitude of the cancer problem may be gained by determining the effect of cancer mortality on life expectancy. It has been estimated that persons currently dying of cancer would live an average of 15 years longer if cancer were eliminated as a cause of death.[2]

SITES OF CANCER ORIGIN

Variation by Sex.—Although the incidence of cancer is essentially the same in the two sexes, there is a marked difference by site of origin. In females, nearly one-half of all cancer originates in the reproductive organs (breast and genitals) and nearly one-fourth in the digestive system. Among males, only one cancer in eight originates in the reproductive organs, while one-third originate in the digestive system. Nearly all forms of cancer, other than cancer of the reproductive organs, occur more frequently among males. If genital and mammary cancer are excluded, the incidence rate per 100,000 becomes 290 for males and 181 for females, or 60% greater among males. The largest excess is found for cancer of the respiratory system. Cancer of the lung and bronchus occurs four and one-half times as frequently in males, and the incidence of laryngeal cancer is 12 times as high.

The sex difference in susceptibility to cancer of the reproductive organs may arise from differences in function and structure. The more frequent development of nearly all other forms of cancer in males may in large part be due to exogenous factors. Men are exposed to some environmental factors to which women generally are not subjected, and exposure to common etiological agents may be more prolonged or intense for males. The environmental hypotheses seem to be supported by the fact that for most forms of cancer other than genital and mammary the gap between the incidence rates for males and females increases with age. However, the possible role of endogenous factors in the etiology of cancer of the nonreproductive organs should not be overlooked. The higher incidence of cancer among male children cannot readily be attributed to environmental factors. Incidence rates by sex and primary site, for white and nonwhite persons, are given in table 5.

Variation by Race.—The most striking contrast between whites and Negroes is the difference in incidence for cancer of the skin and genital organs. Whereas the skin accounts for one in seven cancers in white persons, skin cancer is relatively rare in Negroes. Among males, the incidence of cancer of the prostate and penis is definitely higher for Negroes, whereas testicular cancer occurs more frequently in whites. Among females, the higher rate of genital cancer in Negroes is due entirely to cancer of the cervix, which occurs twice as frequently in Negro women. Cancers of the corpus, vagina, and vulva occur with equal frequency in both races, while cancer of the ovary occurs more frequently among whites.

The low incidence of skin cancer in Negroes is generally considered to result from a true racial difference in susceptibility. The higher incidence of cancer of the prostate, penis, and cervix in Negroes has been attributed to sex habits and sex hygiene, the prevalence of veneral disease, pregnancy history, and medical care at parturition. However, the available evidence is insufficient to establish the precise importance of any of these factors.

TABLE 4.—*Percentage of White Persons Expected to Develop Cancer During Future Lifetime, Broad Site Groups by Sex and Age*

Site	Men, Beginning at		Women, Beginning at	
	Birth	Age 65	Birth	Age 65
All cancer				
By age 65	12.8	....	17.0	....
During future lifetime	30.9	28.3	36.3	25.1
All cancer, excluding skin				
By age 65	10.6	....	15.2	....
During future lifetime	25.9	23.9	31.7	21.4
Buccal cavity				
By age 65	0.9	....	0.3	....
During future lifetime	1.9	1.6	0.7	0.6
Digestive system				
By age 65	4.0	....	3.3	....
During future lifetime	10.3	9.9	9.8	8.4
Respiratory system *				
By age 65	1.9	....	0.4	....
During future lifetime	3.3	2.3	0.9	0.6
Breast (female)				
By age 65	...	....	4.0	....
During future lifetime	...	....	7.5	4.6
Genital organs				
By age 65	0.7	....	4.5	....
During future lifetime	4.0	5.1	7.2	3.4
Skin				
By age 65	2.2	....	1.7	....
During future lifetime	5.1	4.4	4.6	3.7
Urinary organs				
By age 65	0.9	....	0.4	....
During future lifetime	2.3	2.2	1.5	1.3
Leukemia				
By age 15	0.08	....	0.07	....
By age 65	0.4	....	0.4	....
During future lifetime	0.7	0.6	0.6	0.3
Lymphoma				
By age 15	0.03	....	0.02	....
By age 65	0.6	....	0.4	....
During future lifetime	0.9	0.5	0.7	0.4

* The estimates for the respiratory system are undoubtedly too low. They are based on current incidence rates, and experience indicates that the incidence of respiratory cancer is likely to continue to increase during the next few decades.

Changes from 1937 to 1947.—The outstanding change between the two survey periods was the large reported increase in illness from cancer of the lung and bronchus. Both the incidence and mortality rates more than doubled in a period of 10 years (table 6). Part of the increase may be due to improved case finding. It seems unreasonable, however, to attribute all of the observed increase to this factor. The differential rate of increase between 1937 and 1947 in the two sexes (males, 119%; females, 67%) argues against this conclusion. At least part of the reported increase in lung cancer incidence and mortality is real.

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[2] Effect of Cancer on Longevity: United States, 1939-41, Vital Statistics Special Reports 32, no. 7, Public Health Service, National Office of Vital Statistics, 1950, pp. 239-242.

A sizable decrease (24%) was reported in the incidence of cancer of the stomach. This decrease must be interpreted in the light of reported increases for other parts of the digestive system, which resulted in an unchanged incidence rate for the digestive system as a whole. This suggests a shift in the site classification of cancers originating in the digestive system rather than a real change for specific sites. It is possible that some cases of cancer that in 1937 were considered to be primary in the stomach on clinical evidence alone, in 1947 would have been classified as primary in the intestines, as a result of x-ray, exploratory surgery, or biopsy.

TABLE 5.—*Age-Adjusted* Cancer Incidence Rates per 100,000 Population, Broad Site Groups and Selected Individual Sites by Color and Sex, 1947*

	White		Nonwhite	
Primary Site	Male	Female	Male	Female
All cancers	338.3	333.4	252.6	293.0
Reproductive organs	39.4	146.9	54.2	162.3
Nonreproductive organs	298.9	186.5	198.4	130.7
Buccal cavity	25.8	7.7	10.9	5.3
Lip	5.8	0.8	0.4	0.2
Tongue	4.2	1.2	2.7	1.1
Pharynx	4.4	0.8	3.3	0.9
Digestive system	110.5	79.8	96.9	68.0
Esophagus	8.3	1.9	9.7	2.2
Stomach	34.1	18.3	39.6	22.8
Large intestine	26.2	27.8	13.9	16.2
Rectum	22.1	15.2	12.7	13.6
Liver	4.9	4.2	5.3	2.7
Biliary passages	2.3	4.4	1.0	2.0
Pancreas	9.3	5.5	11.6	6.4
Respiratory system	38.6	8.3	33.2	7.9
Larynx	7.6	0.6	5.7	0.6
Lung and bronchus	29.5	6.5	25.4	5.8
Breast	0.8	72.6	0.2	53.9
Genital organs	38.6	74.3	54.0	108.4
Cervix	.....	39.1	.....	78.8
Corpus	.....	16.8	.....	16.2
Ovary	.....	14.7	.....	9.9
Vagina, vulva	.....	3.0	.....	2.9
Prostate	34.8	.....	49.9	.....
Penis	1.3	.....	2.9	.....
Testis	2.3	.....	0.9	.....
Urinary organs	24.5	11.5	11.5	11.7
Kidney	5.6	3.1	4.3	3.0
Bladder	18.6	8.0	7.0	7.9
Skin	51.4	38.1	4.5	6.0
Brain and nervous system	7.1	5.0	4.4	3.6
Endocrine glands, not elsewhere classified	2.0	3.8	1.0	3.7
Bone	2.3	1.9	2.6	1.4
Soft tissue	2.1	1.8	2.6	1.6
Leukemia	9.1	6.3	8.6	2.9
Lymphoma	10.8	7.5	7.5	6.7
Other sites	14.7	14.8	12.9	11.9

* Adjusted on age distribution of the population of the United States (continental) in 1950.

For a number of site groups, the relationships between changes in the incidence and mortality rates suggest that some progress has been made in the management of the cancer problem. The sites involved and the changes in cancer incidence and mortality from 1937 to 1947 are shown in table 7. The observed differential trends may have resulted either from earlier case finding or from more successful treatment. An alternative explanation, that in 1947 a greater proportion of the reported cases of cancer were in fact nonmalignant, seems unlikely in view of the increased utilization of microscopic techniques for the confirmation of cancer diagnoses. The suggestion that there has been improved case management requires verification. This might be accomplishd through the analysis of trends in case survival rates.

TABLE 6.—*Age-Adjusted* Cancer Incidence and Mortality Rates, 1947, and Percentage of Change, 1937 to 1947, by Primary Site*

	Incidence		Mortality	
Primary Site	Cases per 100,000 Population, 1947	Change 1937-1947, %	Deaths per 100,000 Population, 1947	Change 1937-1947, %
All cancer	828.0	14†	156.4	3†
Buccal cavity	15.5	12	4.8	2
Lip	5.6	4	0.4	—20
Tongue	2.5	—12	1.2	—25
Pharynx	2.5	127	1.6	60
Digestive system	93.5	0	63.6	— 8
Esophagus	5.1	13	4.1	14
Stomach	26.4	—24	19.5	—26
Intestines	26.8	19	16.3	5
Rectum	17.9	19	10.1	17
Liver and biliary passages	7.9	—22	6.4	—27
Pancreas	7.4	28	5.8	18
Respiratory system	22.9	66	15.3	68
Larynx	3.9	22	1.9	12
Lung and bronchus	17.6	105	12.7	123
Breast	36.9	11	14.6	9
Female genital organs	40.0	0	16.8	—10
Uterus	31.0	— 4	12.0	—18
Ovary	7.2	18	4.1	21
Male genital organs	18.1	16	8.1	— 2
Prostate	16.3	19	7.5	— 1
Urinary organs	17.1	16	7.8	— 8
Kidney	4.2	14	2.3	— 4
Bladder	12.5	16	5.4	—11
Skin	40.4	23	2.4	4
Brain	4.6	109	2.1	200
Bone	2.1	—51	1.3	—48
Leukemia	7.4	....	5.4	....
Lymphoma	9.0	....	4.9	....
Other sites	27.2	25	12.7	9

* Adjusted for age on the total population of the United States (continental) in 1950.

† Adjusted for the fact that leukemia and Hodgkin's disease were not reported in 1937.

TABLE 7.—*Change in Cancer Incidence and Mortality from 1937 to 1947*

	Change 1937 to 1947, %	
Primary Site	Incidence	Mortality
Female genitals	0	—10
Digestive system	0	— 8
Urinary organs	+16	— 8
Male genitals	+16	— 2
Buccal cavity	+12	+ 2

PATTERN OF MEDICAL CARE

In addition to information on the distribution of different forms of cancer in the population, the morbidity surveys provide some insight into the pattern of medical care given to persons with cancer. These data include (1) proportion of persons with cancer receiving hospital care, (2) length of hospitalization, (3) proportion of cases in which diagnosis is microscopically confirmed, (4) stage at diagnosis, and (5) survival experience.

Hospitalization.—Of every 100 patients with cancer under care in 1947, 73 were seen in a hospital, compared to 68 in 100 in 1937—an increase of 7%. The average period of first hospitalization was 23 days. Since a sizable proportion of patients with cancer are hospitalized more than once, the total number of days of inpatient care received by the average patient is considerably greater than 23, probably at least 30. This represents a serious drain on the financial resources of the patient and his family and on the hospital resources of the community.

Table 8.—*Number of Survivors in Every 100 Diagnosed Cases of Cancer, by Stage at Diagnosis*

Stage at Diagnosis	National Cancer Institute Survey, Yr.	Connecticut, Yr.*		
	1	1	5	10
All stages	64	54	27	16
Localized	84	72	43	26
Regional involvement	58	50	20	11
Remote metastases	28	14	8	1

* The Connecticut register is restricted to patients seen in hospitals. At least part of the difference in the 1 yr. survival rates in the National Cancer Institute survey and the Connecticut register may be attributed to the selection of cases for hospitalization.

Microscopic Confirmation of Diagnoses.—In 72 out of every 100 cases of cancer discovered in 1947, the diagnosis had been confirmed by microscopic examination of tissue, compared to 61 out of every 100 in 1937—an 18% increase. This rise in the proportion of microscopically confirmed diagnoses indicates improvement in the quality of medical care. Whether the diagnosis of cancer is confirmed by a microscopic examination of tissue depends in part on the accessibility of the tissue affected, especially for living patients (fig. 5). In 1947, the site groups with the highest proportion of cases microscopically confirmed were female genitals (84%), breast (83%), lymphoma (83%), and buccal cavity (81%). Except for the parts of the body attacked by lymphoma, these sites are generally accessible. Although the skin is the most accessible of all sites, only two-thirds of the cases of cancer at this site were confirmed microscopically. The ease with which growths on the skin may be removed accounts for the fact that one-third of the diagnoses were based on clinical evidence alone.

Table 9.—*Cancer Sites Accessible to Direct Examination, Percentage of Cases Diagnosed While Localized, by Sex, 1947*

Men			Women		
Primary Site	Percentage of All Newly Diagnosed Cases	Percentage Diagnosed While Localized	Primary Site	Percentage of All Newly Diagnosed Cases	Percentage Diagnosed While Localized
Skin	15.4	94	Breast	21.7	40
Prostate	9.5	50	Uterus	18.9	57
Rectum	6.5	45	Skin	10.7	95
Mouth and pharynx	6.3	61	Rectum	4.5	46
			Mouth and pharynx	2.0	74
Thyroid	0.3	49	Thyroid	1.1	65
Total accessible sites	38.0	70	Total accessible sites	58.9	58
Total accessible sites (excluding skin)	22.6	52	Total accessible sites (excluding skin)	48.2	49

There was a marked difference in the proportion of confirmed diagnoses among patients seen in a hospital and patients seen only by a physician. Nearly four out of five hospitalized patients had a microscopically confirmed diagnosis, compared with one out of every two patients whose condition was diagnosed outside of a hospital. Even cancer of the skin, if diagnosed in a hospital, was microscopically confirmed almost as frequently as cancer of other accessible sites.

Stage at Diagnosis and Survival.—Early diagnosis of cancer is generally recognized to offer the most hope for successful treatment. This principle of cancer control is supported by data collected through follow-up of patients with cancer. Information on the survival experience of patients with cancer with respect to the stage of development of the cancer at the time it was diagnosed is contained in table 8. The data are drawn from the cancer register maintained since 1935 by the state of Connecticut as well as from the surveys conducted by the National Cancer Institute. Each series is based on the experience of more than 40,000 patients.

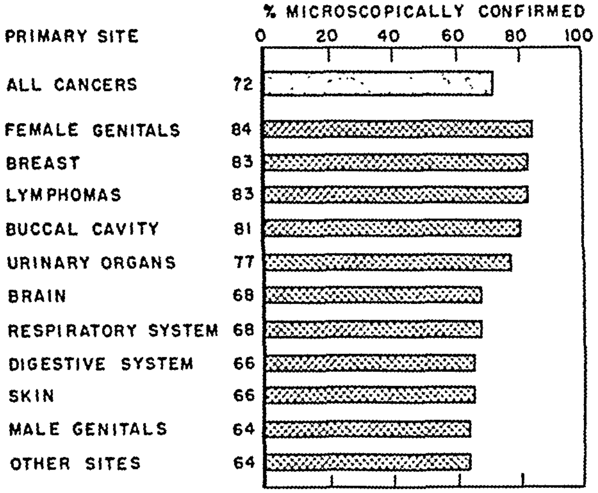

Fig. 5.—Percentage of newly diagnosed cases of cancer with microscopic confirmation of diagnosis by primary site, 1947.

Table 8 indicates that the chances for survival in cases of cancer diagnosed while localized at the site of origin are much better than for cases diagnosed after the tumor has spread to adjacent tissues (regional involvement) or to other organs (remote metastases). For example, of every 100 persons in whom a diagnosis of localized cancer was made, 43 lived for at least five years after diagnosis, whereas of every 100 persons in whom a diagnosis was made after other organs had been invaded, only 3 survived five years. In view of the evident benefits of early diagnosis, it is unfortunate that only one-half of all cases of cancer are being diagnosed while localized at the site of origin. This record could be improved materially, because one-half of all forms of cancer develop in organs accessible to direct examination by the physician in his own office. When skin cancer, which generally does not spread to other organs, is excluded, only 50% of accessible cancer was diagnosed early. The record of each accessible site with respect to the percentage of cases diagnosed while localized is shown in table 9. Noteworthy here is that in cancer of the breast—a highly accessible site—only two of every five cases are diagnosed while the cancer is localized. For cancer of the rectum, the proportion is less than half; for cancer of the prostate one-half; and for cancer of the uterus less than three out of five.

SUMMARY

Cancer morbidity surveys were carried out by the National Cancer Institute in 10 metropolitan areas of the United States in 1937 and again in 1947. The reported cancer incidence rate in 1947 was 319 per 100,000 population; 30% higher than in 1937. More than 500,000 new cases of cancer are being diagnosed in the United States each year; this number will increase to more than 750,000 by 1975. Under prevailing conditions, 32 out of every 100 newborn children may be expected to develop cancer at some time during their lives; 3 by age 45, 14 by age 65, and 23 by age 75. For a number of sites of cancer origin, the data suggest that some progress has been made in the management of the cancer problem. Further substantial advances are within reach through fuller utilization of available techniques. Half of all forms of cancer originate in organs accessible to direct examination by the physician in his own office; yet exclusive of skin cancer, only 50% of cancer developing in accessible sites is being diagnosed while it is localized at the site of origin.

COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

H. D. KAUTZ, M.D., *Secretary.*

Dermatological Preparations of Antibiotics

Until recently the Council has withheld recognition of dermatological preparations of the antibiotics, chloramphenicol, chlortetracycline hydrochloride, erythromycin, oxytetracycline hydrochloride, and tetracycline hydrochloride, pending the accumulation of sufficient experience to weigh their efficacy for topical management of pyogenic skin infections against their potentiality for producing skin sensitization reactions on repeated application. This problem previously led the Council to withhold its recognition of a dermatological ointment of streptomycin sulfate and to withdraw the earlier recognition of various topical forms of the sulfonamides and of penicillin (Sulfonamides for Local Application Deleted from N. N. R., *J. A. M. A.* **135**:157 [Sept. 10] 1947; Penicillin Preparations for Topical Application Omitted from N. N. R. in Annual Reprints of Reports of the Council on Pharmacy and Chemistry, Philadelphia, J. B. Lippincott Company, 1950, pp. 39-40). On the other hand the Council has recognized the topical use of bacitracin, neomycin sulfate, polymyxin B sulfate, and tyrothricin on the basis that these antibiotics exhibit a low index of sensitization and, in contrast to the sulfonamides, penicillin or streptomycin, are employed less often for systemic action in serious infections where sensitivity to them might prevent their use.

The Council recently reopened its evaluation of dermatological forms of the newer antibiotics in relation to the question of local sensitivity reactions on the basis of further experience as indicated by interested manufacturers and the opinions obtained from consultants in dermatology. The data from manufacturers as well as the experience of 11 leading dermatologists revealed that the continued topical use on the skin of an ointment or cream containing 10 mg. per gram of erythromycin, 1% chloramphenicol, or 3% chlortetracycline hydrochloride, oxytetracycline hydrochloride, or tetracycline hydrochloride was associated with a relatively low index of sensitivity reactions, which apparently is somewhere between that of the bacitracin-neomycin-polymyxin group and the penicillin-streptomycin group. In some instances sensitization could be traced to the vehicle rather than the antibiotic. The consultants also agreed, however, that promiscuous use of erythromycin and the broad spectrum antibiotics for topical treatment of pyogenic skin infections should be avoided and often was not required in view of the topical effectiveness of other antibiotics less frequently employed for systemic infections. Continued topical application increases the possibility of systemic allergic reactions.

The Council voted to recognize the discriminate use of dermatological preparations of chloramphenicol, chlortetracycline hydrochloride, erythromycin, oxytetracycline hydrochloride, and tetracycline hydrochloride for the topical treatment of pyogenic infections of the skin and to expand the New and Nonofficial Remedies monographs on these antibiotics accordingly.

Lederle Laboratories Division, American Cyanamid Company; Eli Lilly & Company; Parke, Davis & Company; and Pfizer Laboratories, Division of Chas. Pfizer & Co., Inc., cooperated by furnishing scientific data to aid in the evaluation of dermatological preparations of antibiotics.

Use of Methoxamine Hydrochloride in Shock Accompanying Myocardial Infarction

The Council has evaluated the proposed use of the vasopressor drug, methoxamine hydrochloride, in the management of hypotensive shock accompanying myocardial infarction. The drug previously was found useful as an adjunct to other appropriate measures for restoring blood pressure during surgery, especially with spinal anesthesia and in hypotensive, poor-risk patients. For evaluating its use in myocardial shock, the manufacturer furnished available reports of investigations. The Council also sought the opinions of consultants on the question of its usefulness for this purpose because of the lack of direct inotropic (muscle stimulant) effect on the heart. It was conceded, however, that this should not be construed as a disadvantage because peripheral vasoconstrictors such as methoxamine, which do not directly stimulate cardiac output but which increase peripheral resistance, might well interrupt the vicious cycle of cardiogenic shock by elevating systemic blood pressure and consequently the perfusion pressure of the coronary circulation. Accordingly the Council concluded that, although the available evidence for the use of methoxamine for this purpose was scanty and indicated that it may be less effective than cardiotonic vasopressor agents, the drug has produced benefit in a certain proportion of patients with myocardial shock. The Council also agreed that the use of such agents in this condition is mainly indicated when shock is not so severe that the blood pressure cannot be detected.

The Council voted to expand the monograph on methoxamine hydrochloride in New and Nonofficial Remedies to recognize its additional use as an adjunct in the management of myocardial shock. For this purpose an initial intramuscular injection of 15 mg. of methoxamine hydrochloride may be given, followed by slow intravenous infusion of a solution containing 35 mg. per 250 cc. of 5% dextrose in water for injection; the rate of flow must be adjusted to provide the desired response. Administration should be closely supervised so that the drug is gradually slowed and discontinued as soon as the patient no longer shows clinical evidence of shock.

Burroughs Wellcome & Company, Inc., cooperated by furnishing scientific data to aid in the evaluation of methoxamine hydrochloride.

Hexachlorophene Limited to Preoperative Use on the Skin

In addition to the use of hexachlorophene in soaps and detergents for preoperative disinfection of the normal skin, the Council previously recognized its use for decreasing the incidence and severity of miliaria, ammoniacal dermatitis, seborrheic dermatitis ("cradle cap"), and pyogenic skin infections including carbuncles, furuncles, and impetigo. A review of the evidence for either the prevention or treatment of these infections has revealed that the available data are based on poorly controlled experiments and are too meager to warrant continued recognition of such claims. Consultant experts in this field, who concurred with this view, agreed that the use of hexachlorophene had been conclusively established only for preoperative disinfection of the normal skin.

The Council voted to revise the monograph on hexachlorophene for New and Nonofficial Remedies accordingly.

Additional Uses for Lidocaine Hydrochloride

Several years ago the Council recognized the use of appropriate concentrations of lidocaine hydrochloride for infiltration, block, low caudal, and topical anesthesia; the Council believed that, until its toxic potentialities had been compared with longer-established agents, it should not be used for the more hazardous procedures, continuous caudal, peridural, or spinal anesthesia (New and Nonofficial Remedies 1955, pp. 49-51). The manufacturer subsequently made available further evidence, which has accumulated since the agent was initially evaluated, concerning experience with the latter uses. It indicates that the agent can be employed with reasonable safety for these additional forms of anesthesia when proper precautions are exercised to observe established techniques and to avoid overdosage. The Council agreed with the opinions of consultant anesthesiologists that drowsiness frequently observed after the use of the agent without epinephrine in block or regional anesthesia is indicative of a central depressant action and that undesirable symptoms and warning of overdosage to be avoided include hypotension, pallor, sweating, nausea, vomiting, and muscular twitching.

The Council voted to recognize the additional uses of lidocaine hydrochloride for continuous caudal, peridural, and spinal anesthesia and to revise the monograph for New and Nonofficial Remedies accordingly.

Astra Pharmaceutical Products, Inc., cooperated by furnishing scientific data to aid in the evaluation of lidocaine hydrochloride.

Ophthalmic Use of Erythromycin

The Council has been requested to evaluate the use of erythromycin in the form of an ophthalmic ointment containing 5 mg. per gram. On the basis of currently available evidence, the Council concluded that the topical use of this antibiotic is justified in the treatment of ocular infections that are caused by organisms susceptible to its action. Mild, transient reactions to ophthalmic application have occurred occasionally. The ophthalmic ointment may be applied directly to the infected eye one or more times daily, depending on the severity of the infection.

The Council voted to amend New and Nonofficial Remedies accordingly to recognize this additional use of erythromycin.

Eli Lilly & Company cooperated by furnishing scientific data to aid in the evaluation of erythromycin.

Parenteral Use of Methscopolamine Bromide

The manufacturer of methscopolamine bromide, an anticholinergic drug, has proposed evaluation of its use by subcutaneous or intramuscular injection in acute exacerbations of peptic ulcer when a rapid reduction of gastric acidity and motility is desired or when the patient cannot take the drug by the usual oral route. Clinical observations on the parenteral injection of the drug that were furnished by the manufacturers were found adequate to indicate the feasibility of this route of administration for such patients. The usually effective dosage was found to range from 0.25 to 1 mg. (0.25 to 1 cc. of a solution containing 1 mg. per cubic centimeter) injected subcutaneously or intramuscularly every 6 to 8 hours until acute symptoms are brought under control or oral medication becomes feasible.

The Council voted to expand the New and Nonofficial Remedies monograph on the drug accordingly to recognize its parenteral use.

The Upjohn Company cooperated by furnishing scientific data to aid in the evaluation of methscopolamine bromide.

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ROLE OF THE EPIDEMIOLOGIST

Since the epidemiologist is concerned with disease as it affects the whole population or some special segment of it rather than as it affects the individual, his role is often not appreciated by the practitioner, whose chief but not sole concern is the individual patient. In the past epidemiologists have used their talents primarily to trace the sources of infectious diseases, but, as the relative importance of this group of diseases has decreased, the epidemiologist has found that the methods of study he has developed over the years can be applied to various kinds of accidental injury and the chronic degenerative diseases.

Morris [1] has described seven distinct uses to which epidemiology can be put. Historical studies may bring to light a trend indicating either an increase or a decrease in the incidence of a disease. Such studies give important intimations of the future behavior of the disease in a population. Concurrent studies describe the nature and relative size of disease problems in various regions and the distribution of a disease by age, sex, race, occupation, economic status, or any other factor in which the investigator is interested. Through the use of life tables a person's life expectancy can be computed for any age. Through operational research it can be determined how well certain community health measures or programs are working.

Another use of epidemiology is the completion of the clinical picture by determining what segment of the population is most susceptible to a disease. The accuracy of such observations depends on the discovery of all the cases in a community or on a screening survey of a truly representative portion of the population. The results of such surveys indicate what groups should receive the major effort in a control program. The epidemiological method has been useful in separating entities that were once grouped together. From the peptic ulcers of the early 1920's gastric ulcer and duodenal ulcer emerged as different diseases. Efforts are now being made to separate coronary arteriosclerosis from other forms of coronary heart disease. The reverse process led to the discovery that congenital malformations resulted from maternal rubella occurring during gestation, that rheumatic fever was a streptococcic infection, and that herpes zoster was a manifestation of the chickenpox virus.

Perhaps the most important function of the epidemiologist is the identification of harmful ways of living. Faulty dietary habits were thus shown to cause the avitaminoses; the drinking of polluted water was shown to cause intestinal disease; crowded living space was shown to predispose to respiratory disease; overeating of various foods was shown to be related to the development of such conditions as arteriosclerosis, diabetes, dental caries, and the toxemias of pregnancy; physical inactivity was shown to predispose to coronary thrombosis; and social isolation was shown to lead in some patients to schizophrenia, suicide, or senile dementia. The relation between tobacco smoke and cancer of the lungs and coronary thrombosis is still being investigated. Many other examples could be cited. The results when proved set the direction environmental or personal control measures should take.

In view of these facts, it can be seen that more epidemiology is needed from the standpoint of public health and medicine as a whole. The epidemiological method offers the possibility of testing hypotheses regarding the cause and control of disease. In fighting disease the best results will be obtained if the practicing physician, the laboratory scientist, and the epidemiologist collaborate. No one of these can do the job alone.

SURVIVORSHIP BENEFITS FOR PHYSICIANS' WIDOWS AND MINOR CHILDREN

Advocates of compulsory coverage of physicians under the Old-Age and Survivors Insurance section of the Social Security Act contend that self-employed physicians with young children could well afford to pay the entire Social Security tax for the sole purpose of obtaining survivorship benefits under OASI for the widow whose children are under 18 years of age. The maximum amount of these benefits is now $200 a month. A widow under 65 years of age can receive survivorship (mother's) benefits only if she has in her care a minor child entitled to a child's benefit. It is also claimed that all other benefits promised under OASI are very desirable; for example, benefits for widows and wives aged 65 and over. The facts do not support this contention, however, as equal or greater benefits for the widow while the children are under age 18 can be purchased from life insurance companies at a lower cost.

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[1] Morris, J. N.: Uses of Epidemiology, Brit. M. J. 2:395-401 (Aug. 13) 1955.

Under the 1954 amendments to the Social Security Act, the present tax on self-employed persons is 3% of their annual earnings up to $4,200 a year. Provision is made for an increase to 3.75% during the period 1960-1964, to 4.5% in 1965-1969, to 5.25% in 1970-1974, and to 6% starting in 1975. On earnings of $4,200 a year, the tax is now scheduled to rise from $126 to $252. This schedule can be altered, of course, at any future session of Congress. For example, these percentages would be raised by 0.75% under the provisions of H. R. 7225, which passed the House of Representatives last summer by a large majority. It is, therefore, unrealistic to examine this claim about the value of survivorship benefits for the widow with minor children without recognizing that an increase in the tax rate is already scheduled. Furthermore, the tax base has risen to $4,200, and there is a reasonable prospect that a tax base of $4,800 or possibly $6,000 may be established in the foreseeable future. For the purpose of examining this problem, nevertheless, it will be more conclusive to consider $126 a year as the basis for comparison with life insurance premiums.

Few, if any, life insurance companies offer policies that precisely match the survivorship benefits under OASI for a widow with minor children. Comparable insurance policies specify a term of years—10, 15, or 20—rather than protection until the youngest child attains 18 years of age. The "family income" feature comes close to matching these particular OASI benefits, but the premium paying period, unlike the OASI bite, ends with the term of protection. For example, a young physician aged 25, by paying an extra annual premium of approximately $65, can obtain a "family income" clause—at the time of purchase or later on if he is still insurable—in his $20,000 ordinary life insurance policy that would pay his family $200 a month during the interval between his death and the 20th anniversary of the issue of the policy, at which time the children would be 20 years older and the extra premium would cease. If the father died seven years after the issuance of the policy, the family would receive $200 a month under the "family income" clause for the next 13 years, when the $20,000 basic life insurance policy would be payable. Thus the face amount of the ordinary life insurance policy is not diminished by the payment of monthly benefits of $200 a month. If the father survived the 20 year period, the "family income" clause and its extra premium would terminate.

For a physician 30 years of age, the premium for a "family income" clause for $200 a month would be about $85 a year; for a physician 35, about $115 a year; and for a physician 40, about $166 a year. For this latter comparison, protection for 20 years after the issue of the policy is offered over too long a period for most physicians 40 years of age, because few fathers are over 40 when the last child is born. A more realistic counterpart to the survivorship benefits for a widow with minor children under OASI until the youngest child attains age 18 might be a 10 year "family income" clause for a physician 40 years of age, which would require an annual premium of approximately $60; the extra annual premium for a 10 year "family income" clause at age 45 would be only $83. Almost all self-employed physicians with young children—many employed physicians are now paying OASI taxes—can purchase the counterpart to OASI survivorship benefits to cover their wives in the event they should become widows and until the youngest child would attain 18 years of age for less than $126 a year.

The contention that $126 is a bargain price for the claimed OASI benefits is further weakened by the fact that less than $200 a month would be payable under the 1954 amendments to the Social Security Act if and when the widow had only one child under 18. The primary insurance benefit for the husband, which is the basis for computing the survivorship benefit for the widow and minor children, would be $108.50 a month; the survivorship benefit for one minor child would be three-fourths of this amount, $81.40 a month, and a similar amount for the widow totals $162.80 a month. The fact that many physicians do not leave a widow with minor children is worth noting, although it has no bearing on the argument of young physicians with minor children that this one feature would make OASI a bargain for them. Only by including in the comparison both the widow's benefit, which would stop should she remarry or return to substantial gainful employment, and the benefits for at least two minor children could a standard of $200 a month be established for comparing the tax of $126 a year with the annual premium on a "family income" clause for $200 a month added to a $20,000 ordinary life insurance policy. Incidentally, some insurance companies will add a $200 a month "family income" clause to a $10,000 life insurance policy. Our concern here is with the extra premium charged for the "family income" clause.

Over and above these points of superiority in the provision for survivorship benefits for the widow and minor children by the purchase of insurance is the fact that the insurance policy is a contract providing for definite extra premiums for only 10, 15, or 20 years, has a definite scale of benefits, and is enforceable in the courts.

It is obvious that the original contention about bargain prices under OASI is false even under the assumption that only interested physicians with young children would be covered and taxed; it is not valid for voluntary coverage, to say nothing of compulsory coverage, of physicians under OASI. Considering the present provisions of the Social Security law, the young physician would fare best by purchasing survivorship benefits for his widow and minor children from a reputable life insurance company under a "family income" clause. Admittedly, survivorship benefits for a widow with minor children are not the only claimed benefits under OASI, but $126 a year—the initial cost—is an exhorbitant price to pay for them alone. Furthermore, a rise to $252 in the annual tax by 1975 is already scheduled.

ORGANIZATION SECTION

MEDICOLEGAL SYMPOSIUMS

Over a thousand doctors and lawyers from 20 states attended three regional medicolegal conferences sponsored by the Committee on Medicolegal Problems and the Law Department of the American Medical Association. These meetings, held in Chicago on Oct. 9, Omaha on Oct. 16, and New York on Oct. 30, were the first joint meetings of members of both the legal and the medical professions organized and sponsored by a national organization.

Dr. Elmer Hess, President, Dr. George F. Lull, Secretary and General Manager, and Dr. James Reuling, a Trustee of the Association, welcomed guests at the respective conferences and officially pledged the Association's full support to programs designed to better rapport between law and medicine. They established the theme of the meetings by pointing out that, while no conflict should exist between the two professions, it does—because time, knowledge, and opportunity to eliminate misunderstandings are lacking. In Dr. Hess' words, the meetings were planned and conducted on the conviction that "the ripple of understanding they create will spread through the professions, eventually clearing up the sometimes muddy medicolegal waters." The welcoming speakers all emphasized that the issue is not whether lawyers and doctors can work together but rather how they can work together most effectively for the benefit of those people who must depend on their mutual cooperation.

Three broad areas of medicolegal relations were considered: medicine's contributions to the administration of justice; mutual medicolegal problems as viewed by each profession; and a demonstration showing a medical expert witness under proper and improper courtroom conditions. In the area of the administration of justice, there were provocative discussions on traumatic neurosis, trauma and disease, medical expert testimony, and medical science in the administration of criminal justice. In the area of medicolegal problems, there were discussions of the several aspects of professional liability; a consideration of the professional man as a taxpayer; and an exploration of the best methods to insure unbiased medical expert testimony.

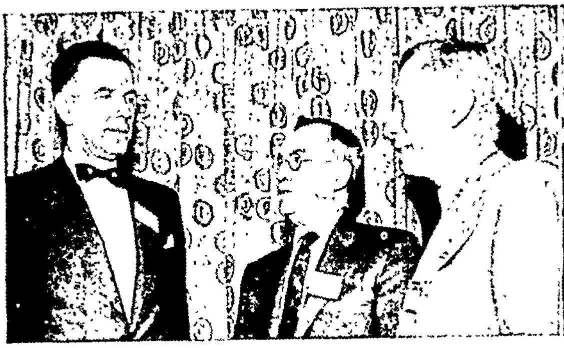
In developing the theme of the conferences, it was admitted that lawsuits are adversary proceedings and conflict is a major element in the medicolegal field. Discussions and papers presented from the viewpoint of each profession proved that doctors and lawyers are both attempting to obtain the best results from individual and professional efforts. In presenting the view of medicine or law, every effort was made to clarify misunderstandings, not for the sake of understanding alone but as a means to an end—the welfare of the individuals served, whether identified as patients, clients, or the public.

The late Dr. Louis Regan, a member of the A. M. A. Committee on Medicolegal Problems, pointed out that medicine participates less effectively in the administration of justice in the U. S. than in any comparable civilized country in the world. Another speaker urged pretrial conferences between doctors and lawyers and advanced the theory that, if doctors would prepare complete reports concerning an individual's medical disability and make the reports available to attorneys properly associated with a case, the doctor would in all probability spend less time in court. In this way, adequate records would often permit a claim to be settled equitably without submission to a jury. The doctor's reluctance to go to court and ways to overcome that reluctance were mentioned in several of the presentations. Physicians also came in for their share of criticism on the ground that, although they insist strongly on scientific objectivity in their daily practices and research, they become less objective as witnesses.

It was pointed out that, because of the trend of some court decisions, the physician is often compelled to give thought to protecting himself against the patient even as he cares for that patient. The urgency for the adoption of the medical examiner system for the protection of the innocent as well as detection of the guilty was stated emphatically. It was stressed that no community can afford to let an innocent man go to prison or a murderer go unpunished today when medical science is available to prevent such miscarriages of justice.

The matter of taxation did not escape notice. It was said by one of the speakers that the "political, legislative and administrative atmosphere in which income tax has mushroomed, especially since 1930, stems from indifference and hostility to the professional man, especially where he is self-employed." Physicians and other professional men have tax disabilities not suffered by the self-employed businessman, including limitations on division of fees, advertising restrictions, entertainment expenses, and the use of partnership or corporate form of practice with possible tax advantages.

The balance of the meeting was devoted to the questioning of a medical expert witness in a two-part mock trial demonstration. In the first part of the demonstration, the medical witness had not been prepared in any way for the role he was to play in the administration of justice. He had poorly prepared himself and had not been adequately advised by the attorney who employed him. As a result he was laid open to a cross-examination that destroyed the credibility of his testimony and made him appear something less than an expert in his specialty. Then the same witness, under the same factual situation, was characterized as a thorough and capable physician. He had conducted a complete examination of the individual and his testimony was objective and factual. Because of preparation he was not, as a witness, subject to a successful attack on cross-examination. The witness was Dr. Ralph E. DeForest, Secretary of the A. M. A. Council on Physical Medicine. He underwent direct



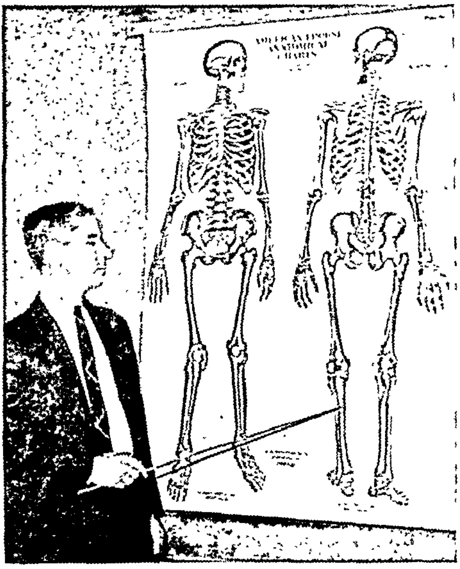
Henry J. TePaske, Iowa City, president of the Iowa Bar Association, discussed the Omaha program with Dr. Joseph McCarthy and Wilbur S. Aten, president of the Nebraska Bar.

At the Omaha meeting were Dr. Alan R. Moritz, Cleveland, Chairman, A. M. A. Committee on Medicolegal Problems; C. Joseph Stetler and Dr. George F. Lull, Chicago; and Dr. Joseph McCarthy, Omaha-Douglas County Medical Society, who was chairman of the meeting.

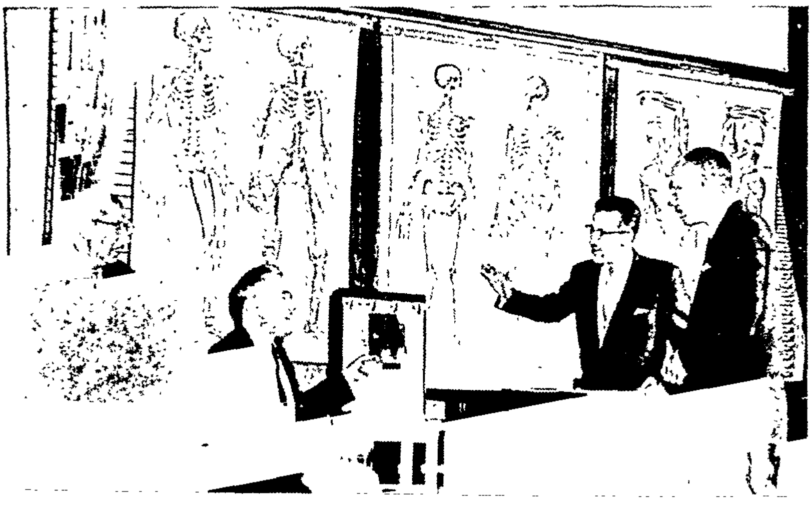
R. B. Murphy, Madison, Wis., attorney, discussed professional men's tax problems.

The late Dr. Louis Regan, Los Angeles, physician and attorney, gave some pointers on medicolegal problems from the *standpoint of both professions.*

Dr. Harlan English, Danville, Ill., presided over the opening meeting in Chicago.

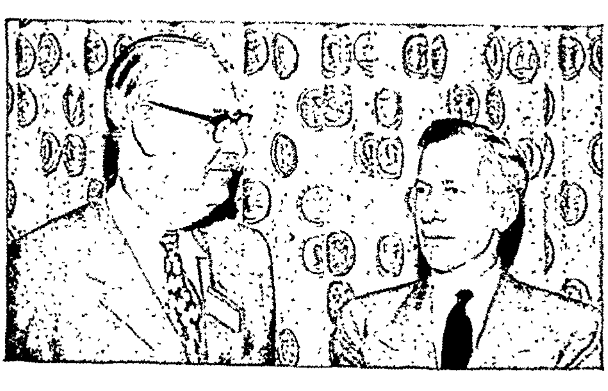


Above—Dr. Richard Ford, acting head, department of legal medicine, Harvard University School of Medicine, gave an illustrated talk showing how easy it is to make a mistake in attributing death to accident, murder, or suicide and pointing out the need for qualified medicolegal examiners.



Left—A highlight of all three symposiums was the "mock trial" of an actual Illinois personal injury case *involving expert testimony concerning a slipped intervertebral disk.* Performers were Irving Golstein, Chicago, as judge; Dr. Ralph E. DeForest, Secretary, Council on Physical Medicine and Rehabilitation, as witness; and R. G. Van Buskirk and Edwin Holman, of the A. M. A. Law Department, as attorneys for the plaintiff and the defense.

Welcoming speakers for the Omaha meeting were Dr. William E. Wright, Creighton, Neb., president, Nebraska State Medical Association, and Wilbur S. Aten, Holdredge, Neb., president, Nebraska Bar Association.



G. C. A. Anderson, Baltimore attorney, who discussed unbiased medical expert testimony, talks with the late Dr. Shabat and Dr. Moritz at Omaha.

examination by R. G. Van Buskirk and cross-examination by E. J. Holman, both members of the A. M. A.'s Law Department.

The script for the demonstration was prepared by Mr. C. Joseph Stetler, Director of A. M. A.'s Law Department, and was designed to stress the importance of cooperation between attorney and physician, adequate pretrial conferences, and understanding of the issues to be presented to and decided by judge and jury. After the formal presentation of papers and the demonstration, the meetings were opened to discussion from the floor. So popular was the discussion period that it was necessary for the chairman at each meeting to use his gavel to terminate the discussion.

The speakers and the titles of their papers included:

LOUIS J. REGAN,* M.D., LL.B., Los Angeles, "Medical Legal Problems—The Physician's and Lawyer's Viewpoint"

JOHN P. GILLIGAN, M.D., Nebraska City, Neb., "Medical Legal Problems—The Physician's and Lawyer's Viewpoint"

ROBERT B. MURPHY, LL.B., Madison, Wis., "The Professional Man as a Taxpayer"

EARL CLINE, Lincoln, Neb., "Professional Liability"

WILLIAM F. MARTIN, New York City, "Professional Liability"

G. C. A. ANDERSON, Baltimore, "Unbiased Medical Expert Testimony—An Actuality"

ALAN R. MORITZ, M.D., Cleveland, "Medical Science in the Administration of Criminal Justice"

RICHARD FORD, M.D., Boston, "Medical Science and the Courts"

ERIC OLDBERG, M.D., Chicago, "Traumatic Neurosis"

ROLAND P. MACKAY, M.D., Chicago, "Traumatic Neurosis"

SAMUEL BROCK, M.D., New York City, "Traumatic Neurosis"

HARRY GAIR, New York City, "Traumatic Neurosis"

IRVING GOLDSTEIN, LL.B., Chicago, "Medical Expert Testimony"

L. WILLARD SHABAT,† M.D., Chicago, "Medical Expert Testimony"

WILLIAM J. HOTZ JR., Omaha, moderator of expert panel

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* Dr. Regan died on Dec. 3.

† Dr. Shabat died on Oct. 21.

SCIENTIFIC PROGRAM, CHICAGO MEETING JUNE 11-15, 1956

Preparations for the Annual Meeting in Chicago are rapidly taking shape. The sections of the Scientific Assembly will hold meetings Tuesday, Wednesday, and Thursday, some in the mornings and some in the afternoons. In the Section on Miscellaneous Topics, a Session on Allergy will be presented on Wednesday morning. The General Scientific Meetings will be held all day Monday and Friday morning. On Monday, the meeting will be held in the Gymnasium of the University of Illinois, adjacent to Navy Pier. The Friday morning meeting will be devoted to traffic accidents and will undoubtedly be held at Navy Pier.

The Section meetings will be held in the places listed below:

Anesthesiology	Sheraton Hotel
Dermatology	Knickerbocker Hotel
Diseases of the Chest	Knickerbocker Hotel
Experimental Medicine and Therapeutics	Sheraton Hotel
Gastroenterology and Proctology	Gymnasium, University of Illinois, adjacent to Navy Pier
General Practice	Drake Hotel
Internal Medicine	Sheraton Hotel
Laryngology, Otology and Rhinology	Northwestern University, Thorne Hall
Military Medicine	Cinema Theater
Nervous and Mental Diseases	Drake Hotel
Obstetrics and Gynecology	Drake Hotel
Ophthalmology	Northwestern University, Thorne Hall
Orthopedic Surgery	Lake Shore Club
Pathology and Physiology	Drake Hotel
Pediatrics	Sheraton Hotel
Physical Medicine	Knickerbocker Hotel
Preventive Medicine	Cinema Theater
Radiology	Lake Shore Club
Surgery, General and Abdominal	Gymnasium, University of Illinois, adjacent to Navy Pier
Urology	Drake Hotel

The Color Television and Motion Picture programs will be presented in rooms at Navy Pier.

The Scientific Exhibit will be presented at Navy Pier in cooperation with the various Sections of the Scientific Assembly. Applications for space close on Jan. 9; application blanks may be obtained from the section representatives or from the Secretary, Council on Scientific Assembly, American Medical Association, 535 N. Dearborn St., Chicago 10.

REGISTRATION AT THE CLINICAL MEETING, BOSTON, NOV. 29-DEC. 2, 1955

Alabama	3	Missouri	17
Alaska	1	Montana	4
Arizona	2	Nebraska	10
Arkansas	6	Nevada	1
California	46	New Hampshire	142
Canal Zone	1	New Jersey	72
Colorado	12	New Mexico	4
Connecticut	165	New York	233
Delaware	8	North Carolina	23
District of Columbia	33	North Dakota	5
Florida	14	Ohio	78
Georgia	12	Oklahoma	10
Hawaii	1	Oregon	6
Idaho	4	Pennsylvania	84
Illinois	82	*Puerto Rico*	4
Indiana	30	Rhode Island	163
Iowa	9	South Carolina	10
Kansas	8	South Dakota	4
Kentucky	14	Tennessee	9
Louisiana	9	Texas	23
Maine	122	Utah	1
Maryland	19	Vermont	59
Boston Area	1,231	Virginia	21
Massachusetts	720	Washington	7
Michigan	69	West Virginia	5
Minnesota	30	Wisconsin	35
Mississippi	4	Wyoming	3
Total			3,688

OTHER COUNTRIES

Argentina	5	Indonesia	2
Austria	1	Ireland	5
Bolivia	2	Israel	1
Canada	24	Korea	2
Chile	1	Mexico	2
China	1	Netherlands	4
Colombia	2	Nicaragua	1
Costa Rica	1	Peru	2
Cuba	3	Philippine Islands	1
Denmark	1	Scotland	1
Ecuador	1	South Africa	1
Egypt	2	Spain	1
England	4	Switzerland	3
France	2	Thailand	5
Germany	2	Turkey	2
Guatemala	1	Uruguay	1
India	2	Venezuela	2
Total (Other Countries)			91
Grand Total			3,779

Christmas At The A.M.A.

'Twas several nights before Christmas but all through the place everyone was stirring . . . at the A. M. A.'s annual Christmas party of the Employees' Recreation Association. Several hundred of the headquarters staff lined up at 5 p. m. on Dec. 13 to await their serving of a traditional turkey dinner in the A. M. A. cafeteria, festively decorated for the holiday season. After the dinner, the 25-member "SingerAMA" presented a concert of Christmas carols and a recital of organ selections. The gala evening was climaxed by a tableau of the nativity scene.

Guests were admitted on presentation of gifts for distribution this week to needy patients in children's hospitals and welfare convalescent homes and to elderly pensioners throughout the Chicago area. More than 600 gifts were donated by the employees.

The E. R. A. was organized four years ago to develop good fellowship among the Association's 900 employees in its numerous departments and to promote a spirit of cooperation within the headquarters building. These photographs speak for its success.

PROCEEDINGS OF THE BOSTON CLINICAL MEETING

ABSTRACT OF PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION AT THE CLINICAL MEETING IN BOSTON, NOV. 29-DEC. 2, 1955

The actions of the House of Delegates at the Boston Meeting are herewith abstracted so that the readers may have this information in digest form. The official proceedings will be made available, as in the past, in a booklet, which will be sent to all members of the House of Delegates and officers of the American Medical Association by the Secretary. This booklet will not be available for several weeks.—Ed.

Invocation

Dr. Edwin P. Booth, professor of historical theology at Boston University School of Theology, pronounced the following invocation:

Accept, O Lord, the praise and thanksgiving of a grateful people for the benefits of medicine. We accept, O Lord, Thy commands to study, to investigate, to experiment, and to sympathize. We are grateful for the light Thou hast given our fathers in medicine in their time, and we pray for Thy blessing upon our efforts in our time, working with Thee to sustain life, to relieve suffering, to restore health. Especially do we pray that we may fulfill that portion of this great task which falls upon this assembly. Give light to our minds, firmness to our judgments, and skill to our persuasion, that, understanding the tasks that lie before us, we may find the right procedures and the right answers to carry forth this mighty work. We lift before Thee in gratitude all the forces that cooperate with medicine, all the technicians, and every other aspect of this great work, and upon the assembly here gathered in Boston representing the American aspect of Thy world-wide medicine; our own tasks and all these other tasks we lay before Thee for Thy guidance, and unto Thy gracious care and protection we commit ourselves and all we do. Grant us, O Lord, Thy guidance and Thy blessing. Amen.

Preliminary Report of Reference Committee on Credentials

Dr. Raymond F. Peterson, Chairman, Montana, reported that 184 delegates had been seated, and informed the Speaker that a quorum was present.

General Practitioner of the Year

Dr. Gunnar Gundersen, Chairman, Board of Trustees, made the following announcement:

The Board of Trustees is pleased to announce the selection of Dr. E. Roger Samuel of Mount Carmel, Pa., as the recipient of the General Practitioner of the Year award.

Dr. Samuel has been a general practitioner for 35 years and practices in the town where he was born. He is active in charitable, civic, and medical organization work and was nominated by the Medical Society of the State of Pennsylvania after original sponsorship by the Mount Carmel Rotary Club and the Northumberland County Medical Society. Dr. Samuel was born Sept. 25, 1889, attended Dickinson College, and was graduated from the University of Pennsylvania School of Medicine in 1913. After spending a year as resident pathologist at the Pennsylvania Hospital in Philadelphia, he entered general practice in Mount Carmel. He married Emily G. Snyder in 1917 and has three daughters. During World War I he served as captain in the Army Medical Corps assigned to the British Expeditionary Forces and was awarded the Purple Heart. He is a charter member and past commander of the Mount Carmel American Legion post. Dr. Samuel, a 33rd degree Mason, Past Master, and present trustee of his local lodge, has been trustee, treasurer, and Sunday school teacher of the First Methodist Church, president of the Community Concert Association, president of the Northumberland County unit of the American Cancer Society, medical advisor of the tuberculosis and health committee, and member of the board of the Mount Carmel Red Cross chapter and the Mount Carmel Rotary Club.

He has been active in civil defense, establishing first-aid stations throughout the area, and was a member of the Selective Service Board during World War II. He has been president of the Board of Health, Fraternity Club, Kiwanis Club, and president and founder of the Mount Carmel Chamber of Commerce. Dr. Samuel has been president of the county and state medical societies and has held other offices in both groups. He also has been president of the staff at the Shamokin State Hospital, compensation doctor for the Jeddo-Highland Coal Company, surgeon for the Lehigh Valley Railroad Company, member of the board of the Medical Service Association of Pennsylvania (Blue Shield), and a member of the American Academy of General Practice, the World Medical Association, and the Association of Railway Surgeons.

Adoption of Minutes of Atlantic City Annual Meeting

The minutes of the Annual Meeting held in Atlantic City, N. J., June 6-10, 1955, were adopted as printed and distributed to the members of the House of Delegates.

Remarks of the Speaker, Dr. E. Vincent Askey

The Speaker presented the following remarks, which were referred to the Reference Committee on Reports of Officers:

Members of the House of Delegates of the American Medical Association: The address of the Speaker is limited to matters of conduct and procedure in the House. Every organization has a few procedures peculiar to itself either by tradition or prescribed by its constitution and bylaws. It happens that at every session of our House of Delegates there are a few members who have not been seated before. It is not amiss therefore, for their benefit, to call attention to some parts of the *modus operandi* of our House. First, I would urge you all most carefully to read and become familiar with the little booklet you have received, "Your Role as a Delegate to the American Medical Association." This has been prepared very carefully, and compliance with its requests will aid the conduct of the business of the House immeasurably. In addition, every delegate should be familiar with the current Constitution and Bylaws and the Principles of Medical Ethics. Changes are made from time to time, and you should be up to date in your knowledge of them. Robert's Rules of Order are the rules of the House except where the Constitution and Bylaws specifically direct otherwise. The ordinary rules of order may be suspended by a two-thirds vote of the House, but any rule specified by the Constitution or Bylaws cannot be changed except in the prescribed manner even by a unanimous vote of the House. The order of business may be changed by majority vote.

The Chair would refresh your memory to the fact that the House is made up of voting and nonvoting members. All regularly elected or designated delegates who are seated are entitled to the floor and also to vote. Since the Speaker and Vice Speaker are regular delegates they are entitled to all the privileges of regular delegates except that the Constitution and Bylaws specifically state that the Speaker, the one in the Chair, votes only in case of tie. The general officers of the Association, the past-presidents and past-trustees, and some other specified persons such as the Editor, the Assistant Secretary, the chairmen of councils and the delegates from the Student American Medical Association are nonvoting members of the House and as such are entitled to all the privileges of the floor but are not entitled to vote. It has been asked how the Speaker and Vice Speaker can vote when they are general officers and do not have a vote. When the Speaker and Vice Speaker vote, they do so as regularly elected delegates. This brings to attention a minor detail of procedure. The Secretary is a nonvoting member of the House. The Bylaws require all elections to be by ballot, except where there is only one nominee for an office. In that case a majority vote without ballot elects. Therefore the Secretary cannot legally cast the ballot. Should you wish to move that a ballot be cast the Chairman of Tellers should be so delegated.

Each member of the House of Delegates is entitled to speak once, on recognition—twice if no other member wishes the floor—for 10 minutes each time. He may speak more times if no objection is made or if motion to extend debate is ordered by a two-thirds vote. No attempt will be made by the Chair to curtail free and adequate discussion. In case of heated controversy, however, the rules will be strictly enforced, and they should be understood thoroughly.

REFERENCE COMMITTEES

The reference committees are a most important part of the House procedure. The members of each committee are chosen by the Speaker with great care. Experience, ability, geographic location, division of practice, seniority, and integrity are all factors entering into appointments. For that reason no member of a committee should disqualify himself from acting on any matter referred to his committee merely because he has an opinion on it or because it comes from his state or for similar other reason. The committee merely makes a report to the House, and the House may adopt or reject the report as it sees fit. Each committee member is expected to give his best efforts to seek the best answer to each problem and to stand by his honest convictions.

A short discussion of the procedure of receiving the committee reports may be of value at this time. The majority report is the report of the committee. A minority report is one which does not agree with the majority and, if adopted, has the effect of nullifying the majority. A substitute motion is an amendment with certain peculiar variations. A minority report is actually an argument against the majority report and is germane to debate for or against adoption of the majority report. There are many good opinions that vary as to how a substitute motion should be handled. However, our Bylaws follow Robert's Rules of Order. Our interpretation of these rules follows very closely what we have used in the past. A committee report, majority, is presented and is open for discussion. A minority report is made and constitutes an argument against the committee, majority, report. It is moved that this minority report be substituted for the committee report. Then the original motion is again open to discussion and since the minority report is an argument against the motion it may be discussed also. When all discussion is ended, the motion to substitute the minority report for the majority is voted. If this motion carries, then the majority report is lost and the minority report is before the House and open to more discussion. It is then voted. If the motion to substitute be lost, the original majority report is before the House and open to discussion and vote. If neither the report of the committee nor the minority report be adopted then the original resolutions given to the reference committee may be called up on the floor for direct action unless they have been disposed of. By that I mean that sometimes the committee report, if it is turned down, disposes of the original motion.

Special committees ordered by the House of Delegates report directly to the House, and then their reports are referred to the appropriate reference committees. The Chair would again call attention to the fact that all business of this House must be referred to a committee except by specific action of the House. Committees of the Board of Trustees report to the Board, and their reports are assigned, on presentation to the House of Delegates, to one of the regular reference committees for consideration. Standing committees, the councils, of the House of Delegates present their reports to the House at the interim meeting and these are referred to appropriate reference committees. All special committees and reference committees of the House die with the end of the meeting at which they report unless extended by definite action. Therefore, a motion to discharge such a committee is superfluous.

The Chair would again urge you to expedite consideration of the business of the House by getting all reports and resolutions in early. Also, it is important that you edit your resolutions so that the action refers to the American Medical Association rather than merely presenting a facsimile of a resolution that was passed by your state association or other body.

Your Speaker has continued the innovations which his esteemed predecessor instituted. Changes will be made if need arises. However, the maxim of St. Paul still is one good to follow—"Prove all things, hold fast to that which is good."

REPORT OF REFERENCE COMMITTEE ON REPORTS OF OFFICERS

Dr. Wesley W. Hall, Chairman, Nevada, submitted the following report, which was adopted:

Address of the Speaker: This was a brief but very thorough lesson in parliamentary law, so necessary for efficient handling of the House of Delegates. Your committee feels that the subject matter of this address should be incorporated in the booklet "Your Role as a Delegate to the American Medical Association." In addition, your committee feels that a copy of this address should be forwarded to the speaker of the house of delegates of each state society to be used as an additional guide in his conduct of state assemblies. Furthermore, your committee reemphasizes the Speaker's request that all resolutions and reports be submitted as early as possible, thereby preventing a last minute rush. It is noted that far more time is required by the office staff in assembling and filing paper work than in actual mimeographing.

Your reference committee wishes to compliment both the Speaker and Vice Speaker for the excellent manner in which they are conducting the affairs of the House.

Reference Committees of the House of Delegates

The Speaker announced the appointment of reference committees as follows:

AMENDMENTS TO THE CONSTITUTION AND BYLAWS

J. J. Crane, *Chairman*, Section on Urology
Maurice J. Dattelbaum, New York
Karl S. J. Hohlen, Nebraska
Francis T. Holland, Florida
Stanley B. Weld, Connecticut

BOARD OF TRUSTEES AND SECRETARY, REPORTS OF

Homer M. Izumi, *Chairman*, Hawaii
Woodruff L. Crawford, Section on Pediatrics
Frank A. MacDonald, California
George A. Unfug, Colorado
Dexter H. Witte, Wisconsin

CREDENTIALS

Raymond F. Peterson, *Chairman*, Montana
Thomas M. d'Angelo, New York
John N. Gallivan, Connecticut
R. T. Johnstone, Section on Preventive and Industrial Medicine and Public Health
Spencer A. Kirkland, Georgia

EXECUTIVE SESSION

William F. Costello, *Chairman*, New Jersey
Frank J. Elias, Minnesota
Leopold H. Fraser, California
Howard K. Petry, Pennsylvania
Rolland J. Whitacre, Section on Anesthesiology

HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

L. Howard Schriver, *Chairman*, Ohio
Joseph B. Copeland, Texas
Gerald D. Dorman, New York
Paul D. Foster, California
H. Kenneth Scatliff, Illinois

INSURANCE AND MEDICAL SERVICE

Lewis A. Alesen, *Chairman*, California
R. J. Azzari, New York
Lester D. Bibler, Section on General Practice
Percy E. Hopkins, Illinois
H. Linton January, New Mexico

Legislation and Public Relations

Paul A. Davis, *Chairman*, Ohio
Earle M. Chapman, Massachusetts
W. Andrew Bunten, Wyoming
John J. Masterson, New York
Elmer G. Shelley, Pennsylvania

Medical Education and Hospitals

George M. Fister, *Chairman*, Utah
Warde B. Allan, Maryland
Alfred H. Ellison, Indiana
Warren W. Furey, Illinois
William A. Hyland, Michigan

Medical Military Affairs

Charles H. Richardson Sr., *Chairman*, Georgia
Otis O. Benson Jr., United States Air Force
William C. Chaney, Tennessee
Louis W. Jones, Pennsylvania
Russel V. Lee, Section on Military Medicine

Miscellaneous Business

Frank H. Krusen, *Chairman*, Section on Physical Medicine
Reuben B. Chrisman Jr., Florida
Frank J. Holroyd, West Virginia
William M. Skipp, Ohio
Milford O. Rouse, Texas

Reports of Officers

Wesley W. Hall, *Chairman*, Nevada
William L. Estes Jr., Pennsylvania
Thurman B. Givan, New York
Robert L. Novy, Michigan
Donovan F. Ward, Iowa

Rules and Order of Business

B. O. Edwards, *Chairman*, North Carolina
Aldrich C. Crowe, New Jersey
George D. Johnson, South Carolina
Ezra A. Wolff, New York
Hoyt B. Woolley, Idaho

Sections and Section Work

Gilson Colby Engel, *Chairman*, Pennsylvania
Howard M. Bubert, Maryland
John S. DeTar, Michigan
Philip S. Foisie, Massachusetts
B. E. Montgomery, Illinois

Tellers

Eustace A. Allen, *Chairman*, Georgia
Charles J. Ashworth, Rhode Island
Orwood J. Campbell, Minnesota
Frank L. Feierabend, Missouri
John F. Lucas, Mississippi

Sergeants-at-Arms

William F. Brennan, *Chairman*, Pennsylvania
David W. Gaiser, Washington
C. Paul White, Illinois

Presentation of Medal to General Practitioner of the Year, Dr. E. Roger Samuel

Dr. James Z. Appel, Pennsylvania, escorted to the rostrum Dr. E. Roger Samuel, Mount Carmel, Pa., and Dr. Gunnar Gundersen, Chairman, Board of Trustees, presented him with the General Practitioner of the Year Gold Medal award.

Dr. Samuel accepted the medal with the following remarks:

I accept this great honor in behalf of the general practitioners of America. We have finally, after a great many years, attained the privileges and right to practice medicine amongst you fellows.

When I was a member of the House many years ago, there were very few general practitioners who could find the time and the energy and the money to come to all these meetings, but since then, they tell me, there has been a new crop that has grown up and there are a few of us poor, debilitated fellows scattered amongst you to help in these deliberations. I think the thing that impresses me most about this whole business is the fact that it comes from the grass roots. Your county society suggests one of your members for this important honor and the rest of you concur. I accept this honor very humbly, but I do believe it is something that is going to give heart and energy to the general practitioners throughout the nation. I remember the time when a delegation came to me and asked me to be president of the Medical Society of the State of Pennsylvania. I said, "I can't do that. I haven't got the time. I haven't got the energy to do that kind of a job." They said, "Our general practitioners are feeling that this thing has been handed down from one group to another, and we feel that the general practitioner should be represented." As a result, I accepted that job, and every place I went men said to me, "You have encouraged and enheartened the general practitioners in your state."

I think I am correct in believing that you are my friends, and I know that I am your friend. I work with you and you work with me. You have given me this great honor and I accept it with due humility in the name of all the general practitioners of the United States. Thank you!

Report of Reference Committee on Rules and Order of Business

Dr. B. O. Edwards, Chairman, North Carolina, presented the following report, which was adopted:

Your Reference Committee on Rules and Order of Business recommends (1) that the Order of Business be as it is printed and has been distributed to the delegates; (2) that the Speaker be authorized to vary this order if necessary adjustments become evident, unless objected to and ordered by the House; (3) that the Speaker recess the House at times to be determined by him and best suited for the comfort of the members; and (4) that the Speaker be allowed to grant the privilege of the floor to such persons as may be presented by the President or Chairman of the Board of Trustees and to others who will aid in the deliberations of the House, unless countermanded by vote of the House.

Contribution to American Medical Education Foundation

At the request of the Speaker, Dr. Donald Cass, California, and Dr. Louis H. Bauer, President of the American Medical Education Foundation, came to the rostrum, and Dr. Cass presented a check to Dr. Bauer, with the following remarks:

It gives me a great deal of pleasure to present to the American Medical Education Foundation a check for $25,000 from the California Medical Association. I want to add another word. The Audio Digest has an exhibit in Mechanics Hall, and it is now making money, but unfortunately we have not made enough yet to make a contribution; the money that has accrued in our treasury has had to be used in the business. However, I believe that from now on each year you can expect a substantial contribution from The Audio Digest.

Remarks of Dr. Louis H. Bauer, President, American Medical Education Foundation

Dr. Bauer accepted the check tendered by Dr. Cass with the following remarks:

On behalf of the American Medical Education Foundation and the American medical colleges, I want to thank the California Medical Association for this generous gift. We also want to thank the other state associations that have made contributions to the Foundation, as well as the individuals who have made contributions.

The Foundation is not in as healthy a shape as I wish it were. The amount which we shall be able to turn over to the medical schools the first of January is slightly more than we were able to turn over last year, but that is due to one thing and one thing only, namely, that we had six months more to accumulate funds. Had we made the contribution last July, as we had been making it in previous years, we would have fallen quite a bit short of the funds necessary. We are aiming at 2 million dollars from the doctors and the medical associations of America. We have never approached that. We contributed a little over a million dollars last year, and it will be approximately $1,100,000 this year, provided the contributions during the month of December keep up as they have been coming in in the last couple of weeks.

In talking to representatives of the National Fund for Medical Education, which, as you know, is trying to raise funds from industry, they state that the first question they are asked is, "What are the doctors doing about this?" They feel that it is certainly at least an equal task of the doctors as it is of industry to raise money to protect the freedom of our medical schools. Funds from industry are increasing, but they will only continue to increase as funds from the medical profession also continue to increase. So I hope, when you go back, you will stimulate your colleagues and your societies, if they have not already made contributions, to do so, so that we shall end this calendar year with more than we were able to present in the previous donation and that for 1956 we shall be able to increase that a great deal.

There has been some discussion that the AMEF interfered with the donations direct to colleges, but investigation and inquiry among the medical colleges has revealed the fact that since the AMEF was organized there has not been a single college at which the contributions have diminished; they have actually increased, so I do not think we have interfered with donations direct to the colleges not made through the Foundation. Of course, in reporting to industry what the doctors are doing, we report both what comes through the Foundation and also what is given direct to the schools.

Address of Dr. Leo H. Bartemeier, Joint Commission on Mental Illness and Health, Inc.

The Speaker introduced Dr. Leo H. Bartemeier, chairman of the board of trustees of the Joint Commission on Mental Illness and Health, who addressed the House as follows:

Mr. Speaker and Members of the House of Delegates: I am appearing before you today as the chairman of the board of trustees of the Joint Commission on Mental Illness and Health by the kind permission of your Speaker, Dr. Askey, and at the suggestion of President Elmer Hess to render a short report of the progress to date of the Joint Commission on Mental Illness and Health.

As you perhaps already know, the Council on Mental Health of the American Medical Association, with the express permission of the Board of Trustees, and the American Psychiatric Association have been spearheading for the past two years the development of a Joint Commission on Mental Illness and Health to carry out a nationwide analysis and reevaluation of the human and economic problems of mental illness and mental health of the nation. The organizational work incident to the setting up of the Joint Commission has now been completed, and we have been joined in this effort by some twenty other national organizations of the nonmedical and social professional groups. Fortunately for us there also has been in the last year and a half considerable thinking along similar lines of a necessity for such a study by members of Congress. This has resulted in an act of Congress passed in its recent session without one dissenting vote. This legislation created the so-called "Mental Health Study Act of 1955" which has become Public Law 182. This Act of Congress was most thoroughly supported by the Board of Trustees and the Committee on Legislation of the Association.

The joint commission itself has been incorporated under the laws of the District of Columbia. It has adopted bylaws and has appointed a Board of Trustees composed of 15 persons, 11 of whom are doctors and members of both the American Medical Association and American Psychiatric Association. Dr. Kenneth E. Appel of Philadelphia, a past-president of the American Psychiatric Association, has been elected president of the Joint Commission, and Dr. Jack R. Ewalt, presently commissioner of the Department of Mental Health of the Commonwealth of Massachusetts, has been appointed to the position of principal research investigator for the commission.

The funds made available by Congress under the Mental Health Study Act of 1955 amount to $1,250,000 to be expended over a period of three years. A sum of $250,000 has been appropriated for the first year of the study and the joint commission has already made application for these funds to start the work of the commission early in 1956. Some additional funds have already been made available to the commission by private foundations, and we confidently expect that funds from foundation sources will match or exceed the funds which are being made available by the federal government.

There has never been a thorough-going study and report of all of the aspects of our present resources, methods, and practices for the diagnosing, treating, caring for and rehabilitating the mentally ill. We feel therefore that the organization of the joint commission with proper financing offers a chance of a lifetime to develop guideposts for the American people that will point the way to a new attack on the staggering problem for the next 15 to 20 years.

Along with our Association and the American Psychiatric Association we have invited as initial organizational members of the commission representatives from the American Association on Mental Deficiency, the American Association of Psychiatric Clinics for Children, the American Bar Association, the American Occupational Therapy Association, the American Public Health Association, the Council of State Governments, the National Association for Mental Health, the National Institute of Mental Health, the National Rehabilitation Association, the Social Science Research Council, the U. S. Children's Bureau, the Office of Vocational Rehabilitation of the Department of Health, Education, and Welfare, and the Veterans Administration.

The joint commission during the past year has had a scientific study committee intensively occupied with a determination of the methods of work of the commission. A broad frame of approach has been delineated, and we believe that when the study and report is completed we shall be able to report to the Congress and to the professions concerned: (1) certainly an up-to-date description of the prevalence of mental disorders and the existing resources for and methods of dealing with these in regard to diagnosis, treatment, care, rehabilitation, and prevention, and an evaluation with respect to each; and (2) an examination of the formal and informal resources of our country and their organization and use in dealing with the mental health of our people. Out of such an examination we believe will come a radical reconceptualization of our problems and a reconstruction of these institutions so that they can be more economically used and mental health and illness can be better served.

We realize that this is going to be a tremendous undertaking, and therefore I would like to ask now for all the help and support that I know you are going to be able to give us toward achieving a successful outcome. The commission hopes that through this survey and report it will be able to accomplish in the field of mental health what was similarly accomplished by the "Flexner report" and its subsequent follow-up in achieving the optimum in standards of medical education in the United States.

Presentation and Address of President of Woman's Auxiliary

Mrs. Mason G. Lawson, President of the Woman's Auxiliary, was presented to the House by the Speaker, and delivered the following address:

Members of the House of Delegates of the American Medical Association and Guests: On behalf of the 71,205 members of your Woman's Auxiliary, I extend my appreciation to you for this opportunity to present a brief progress report on our activities during this first half of the current fiscal year.

"Active Leadership in Community Health," our program theme, is projected into all of our activity. As your Auxiliary, we believe that our principal role is that of the volunteer in health education. We are aware that only a properly informed member can achieve this goal so that consequently our program is one of intensive study as well as one of action. We are gratified that each year many more of the national organizations concerned with health are seeking our assistance in their health education program. This, we feel, is not only recognition of the prestige the Woman's Auxiliary enjoys among the national women's organizations, but an increased awareness of our ability to achieve the desired results. This year, the American Cancer Society has prepared material especially designed for the Auxiliary's use in health education. We also recognize the great challenge to community health resources that are offered by the cardiovascular diseases and plan to cooperate with the

American Heart Association in its program of public education. In addition, we shall continue our individual support of all of the other voluntary health organizations, such as poliomyelitis and tuberculosis.

Increasing the interest of state and county auxiliaries and the individual members of the American Medical Education Foundation is one of our most important projects. We are confident that this will result in a substantial increase in our annual contribution to the American Medical Education Foundation in June of 1956. During National Medical Education Week, April 22-28, 1956, we shall participate in the 80 Dimes Campaign, and hope that through this pioneering effort, the lay people of the country will become yearly contributors to the National Fund for Medical Education.

Our Committee on Legislation has been expanded to parallel the American Medical Association committee. We now have, in addition to our chairman, 10 regional chairmen. We are concentrating our efforts in those areas of legislation in which we can be most effective. These chairmen, as well as many other Auxiliary members, attended the American Medical Association Legislative Conference held in their area.

The recruitment program has been broadened to cover not only nurses but recruitment in other fields allied with medicine, such as technologists, physical and occupational therapists, and, in some instances, medical social workers. We recognize the need for trained personnel in these areas of medicine and the shortage which now exists.

The *Bulletin*, our official publication, has almost doubled in subscriptions since June. We are also experiencing the best year to date in obtaining subscriptions to *Today's Health*. Each county auxiliary has been urged to help plan and carry out an informational program or project for public education during Mental Health Week, April 29-May 5, 1956. Every Auxiliary member has been urged to cooperate with her local Civil Defense Administration and to become trained to assist her community in the event of a local or national disaster. At our recent Study Conference in Chicago, the national Auxiliary very proudly received a Distinguished Service award from the Crusade for Freedom for its efforts in their behalf. We are also cooperating with the American Heritage Foundation in their Register and Vote Campaign. One of our newest projects is a survey to determine the contribution of both time and money which the physicians give to their community. This will be done by local auxiliaries and only with the permission of their local society. A joint committee from the national Auxiliary and the American Medical Association Council on Rural Health is engaged in a series of study conferences to explore the areas in which the Auxiliary can participate more effectively in the rural health program.

I have personally visited 13 states since June, and immediately following this meeting I shall visit the District of Columbia. Six additional states and the Territory of Hawaii have been visited by a national officer or chairman. Incidentally, the visit to Hawaii did not cost us anything. Including this session, I have attended eight meetings sponsored by the American Medical Association or one of its departments. Committee chairmen have attended all Association departmental meetings which concern their field of activity. I attended the annual convention of the Auxiliary to the Southern Medical Association, a regional conference of the National Foundation for Infantile Paralysis, and the National Safety Congress, where I participated in the first Conference on Women's Activities. I also attended a Traffic Safety Institute at Northwestern University which was sponsored by the President's Committee for Traffic Safety, served as a judge of the Carol Lane Safety Awards, and made a trailer to the film on medical education, "Danger at the Source." Following this meeting, I shall be present at a Joint Conference on Children and Youth and shall attend the Congress of Industry at the invitation of the National Association of Manufacturers. Immediately following that meeting, I shall be present at a luncheon given by the President of the National Fund for Medical Education for National Women's Organizational Presidents and have been asked to speak to that group.

The Auxiliary has had help from many sources in the promotion of its program and objectives. Although our central office staff is smaller than that of any other comparable women's organization, consisting of only four employees in addition to Miss Margaret Wolfe, our Executive Secretary, we are confident that it is second to none in the efficiency of its operation. We are grateful to Dr. Hess, Dr. Lull, the members of our Advisory Committee, the Board of Trustees, and to the departments and employees of the American Medical Association who have given us much valuable assistance. We want especially to thank Dr. Ernest B. Howard, who serves as the liaison officer between the Auxiliary and the Board of Trustees. We rely on his judgment, and we appreciate his trust and the great amount of time he so freely gives us.

In closing, I would remind you that your county and state auxiliaries are only as alert and enthusiastic as their parent medical associations. Auxiliary activity depends solely on your leadership and direction. Your Auxiliary does not wish to be "out in front," but rather we are content to be your most ardent and resolute followers. I can assure you, without any reservations, that you will have the unified support of your Auxiliary in any project or program which you wish them to undertake. Again, thank you for the privilege of giving this semiannual report to you. It has been a pleasure to be with you.

Introduction of Student A. M. A. Delegates

The Student A. M. A. delegates, Mr. Hugh C. Follmer, Vice President of the student organization, and Mr. Harry D. Wilson Jr., Treasurer, were introduced to the House by the Speaker, who stated that Mr. Follmer was from the University of Nebraska College of Medicine and Mr. Wilson from the University of Maryland School of Medicine and College of Physicians and Surgeons.

Presentation of Scroll by Korean Medical Association Vice President

The Speaker introduced Dr. Chung Kuchoong, Vice President of the Korean Medical Association and Chairman of the Seoul Medical Society, who presented to the Chairman of the Board of Trustees, Dr. Gunnar Gundersen, a scroll and the following communication:

To: Chairman
American Medical Association

I, on behalf of the members of this association, wish to express my heartfelt thanks for your immeasurable contribution for the prosperity of this association.

Sincerely yours,
LL Sun Yun
President
Korean Medical Association

Introduction of Representative of American Medical Society of Vienna

Dr. M. Arthur Kline, Executive Secretary of the American Medical Society of Vienna, Austria, was introduced by the Speaker, who stated that Dr. Kline had been of great help to members of the American Medical Association visiting in Europe.

Address of the President, Dr. Elmer Hess

Dr. Elmer Hess, President, delivered his address, which was referred to the Reference Committee on Reports of Officers. (See Dr. Hess' address in The Journal, Dec. 17, 1955, pages 1545-1547.)

REPORT OF REFERENCE COMMITTEE ON REPORTS OF OFFICERS

Dr. Wesley W. Hall, Chairman, Nevada, submitted the following report, which was adopted:

Address of the President: The theme of every address presented across the length and breadth of our land by President Hess bears additional emphasis. It is, "Doctors take care of sick folks, period!"

Some of the points stressed in this very able address were: (1) Complacency should be regarded as our greatest enemy; (2) every doctor should learn the wide scope and importance of the activities of the American Medical Association as reported in The Journal of the American Medical Association, especially the Oct. 29, 1955, issue, pages 878-947; (3) there should be wide recognition of the extensive activities of the councils, particularly the Council on Mental Health; (4) a complete reevaluation of the Social Security program to date should be carried out before any new additions are considered; (5) deviation of ethical standards should be settled at a local level—these may vary somewhat geographically; (6) medical, lay, and other professional groups should get together for joint meetings. It is the firm belief of President Hess that "reasonable men can sit down around a table and settle a problem." This applies to all our controversial issues; and (7) several plans are in contemplation to aid in the problem of career medical men for the armed forces.

Your reference committee, with sincere pride, wishes to commend President Hess for his untiring efforts and his tremendous ability in carrying the message of true medicine to all people of this country. We pay tribute to him as a magnificent ambassador in interpreting the principles and objectives of the American Medical Association and correcting the misunderstandings of so many uninformed elements. His philosophy may be embraced in these words, "The welfare of the patient supersedes everything else, and doctors, take care of sick folks, period!"

Report of the Secretary

Dr. George F. Lull, Secretary, presented his report (see The Journal, Oct. 29, 1955, pages 878-879), which was referred to the Reference Committee on Reports of Board of Trustees and Secretary with the exception of the final paragraph of the portion entitled, "Actions of the House of Delegates," which was referred to the Reference Committee on Amendments to the Constitution and Bylaws.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Homer M. Izumi, Chairman, presented the following report, which was adopted:

Membership: Your reference committee is pleased to note the continued increase in membership in the American Medical Association. The total membership for the year ending June 30, 1955, of 155,878, represented a gain of 6,567 over the same period for 1954. The total number of members at present exceeds by several thousand the number reported in any previous year, even including years when there were no membership dues. Your committee feels this growth is a reflection of the profession's approval of the policies of the Association. However, our Secretary notes that for 1955 some 7,649 physicians had not as yet established their American Medical Association membership. A list of these physicians has been forwarded to the secretary of each constituent society, and direct notices have been mailed to each of these physicians in order that their American Medical Association membership may be preserved. Your committee commends this action and urges the cooperation of all constituent societies having members in this category. Your committee notes that many constituent and component societies have cooperated in revising their membership regulations to conform with the Association's Constitution and Bylaws. It urges those societies which have not done so to make every effort to conform with this pattern.

Actions of House of Delegates at 1955 Annual Meeting: In a special letter to the constituent state and territorial medical associations, the Secretary called attention, for reference and implementation as indicated, to the actions of the House of Delegates at its Atlantic City session in June. Of these, Resolutions No. 71 and No. 27 are significant:

Copies of Resolution No. 71 on the Draft of Medical Students were sent to the President of the United States and to all members of Congress. Briefly, this resolution protested against the drafting of students who interrupted temporarily their medical education to become instructors in schools of medicine. The national Selective Service System under General Hershey has been cognizant of this problem and has requested local boards to give careful consideration to the occupational deferment of any registrant who becomes a teacher in any of the fields of physical and biological science, mathematics, medicine, and dentistry. Your committee highly commends this action.

Resolution No. 27 on Presumption of Service-Connected Disabilities was sent to the Administrator of Veterans' Affairs and the chairmen of the appropriate committees of the House and Senate. This resolution placed the American Medical Association in opposition to the establishment of "service connection by presumption" for disability developing after military service and, in addition, urged the establishment of service connection for disability on an individual evaluation based on scientific medical evidence.

Field Activity: The Secretary and Assistant Secretary in the past year have been even more active than previously in attending and addressing medical meetings. Your committee believes that this increased activity at its grass roots level is mutually beneficial to all members of the profession and to the Association.

Your reference committee wishes to express for the House of Delegates grateful appreciation to our Secretary, to our Assistant Secretary and to all personnel of the Association for their outstanding service.

Report of the Board of Trustees

Dr. Gunnar Gundersen, Chairman, presented the report of the Board of Trustees (see The Journal, Oct. 29, 1955, pages 879-926), which was referred to the Reference Committee on Reports of Board of Trustees and Secretary with the following *exceptions:*

Report of Department of Public Relations, Report of Washington Office, and Report of Committee on Legislation to the Reference Committee on Legislation and Public Relations.

Report of Council on Industrial Health, Report of Council on Mental Health, and Report of Bureau of Health Education to the Reference Committee on Hygiene, Public Health, and Industrial Health.

Report of Council on Rural Health and Report of Council on Medical Service to the Reference Committee on Insurance and Medical Service.

Report of Council on National Defense to the Reference Committee on Medical Military Affairs.

Report of Council on Scientific Assembly and of Bureau of Exhibits to the Reference Committee on Sections and Section Work.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr Homer M. Izumi, Chairman, Hawaii, presented the following report, which was adopted:

Geriatrics: In response to a directive of the House of Delegates a Committee on Geriatrics was appointed to function under the Council on Medical Service. The broad objective of this committee will be to outline basic problems of geriatrics and methods for approaching these problems. Your reference committee endorses these objectives.

Resolution on Reimbursement for Collecting American Medical Association Dues: This resolution introduced at the June meeting in Atlantic City on behalf of the New York delegation would direct full reimbursement of constituent societies for expenses in collecting and transmitting American Medical Association dues. After a discussion of this problem with members of the New York delegation and Association officials, it appears that efforts are now being made to effect economies in the collection of dues. Therefore, your reference committee concluded that the present method of allocation of 1% of dues is ample to cover expenses. Your committee concurs with the recommendation of the Board of Trustees that no changes be made in the present policy.

Resolution on Introduction of Committee Reports: This resolution, also introduced at the Atlantic City meeting, would require all committee reports to be submitted to the Association sufficiently early to be transmitted to members of the House not less than 30 days prior to the meeting at which they are to be introduced, and that all reports not so submitted be deferred for introduction until a later meeting unless exception be made by a two-thirds vote of the House. The Board of Trustees believes the intent of this resolution is sound but that its implementation is impractical. Your committee is in accord with the Board's opinion on this matter, but would urge all delegates to take cognizance of this principle and make every effort to comply with its intent.

The Journal of the American Medical Association and the Specialty Journals: THE JOURNAL continues to expand its activities in keeping with the needs and demands of the profession. In addition to high caliber scientific articles and abstracts, valuable and interesting information is reported under such titles as the President's Page, the Organization Section, and the Washington News. These items, often medicoeconomic in nature, are clearly presented. The articles on Medicine and the Law, Public Relations, and Federal Medical Legislation are a few of the more recent innovations that your committee commends for informative brevity.

Your committee is pleased to note the continued efforts at improvement of the specialty journals, particularly in the format, the expanded use of color reproductions, and new editorial features. The intensified promotional campaign to gain new subscribers for THE JOURNAL as well as the specialty journals merits commendation by the House and your committee so recommends.

Registration at Meetings: Your committee is pleased to note that substantial economies in the operation of the Registration Bureau have been accomplished, and wishes to compliment the Director and the Registration Bureau for their efficient management.

Library and Standard Nomenclature of Diseases and Operations: Your committee notes with satisfaction that the profession is continuing to make substantial use of the library facilities of the Association.

The Standard Nomenclature of Diseases and Operations is now being used in almost 85% of the nation's hospitals. Your committee is pleased to note the increasing popularity of the Nomenclature in doctors' offices and clinics. It commends the Association's sponsorship of the several institutes held for medical record librarians and medical office personnel during the year. Your committee, aware of the need for improving the precision and uniformity of medical terminology, urges that further institutes be sponsored on a regional basis if possible.

Today's Health: Your committee is pleased to note great improvement in *Today's Health* from the standpoint of appearance, content, and salability. The average net paid circulation for the first six months of 1955 was the highest figure ever established for the magazine. This gain has been largely due to "Operation MD-DDS" of the medical society auxiliaries. Your committee takes this opportunity to recognize and commend this splendid contribution of our Woman's Auxiliary, and urges the support of all component and constituent societies in the current project of obtaining 63,000 new subscriptions by May, 1956.

Report of Law Department: This is the first report of the Law Department, which was established last year. The Department has continued the medicolegal services rendered by the former Bureau of Legal Medicine and Legislation and has initiated new programs that should be of substantial value to the public and to the medical profession. In addition to their regular legal duties, members of the staff serve as secretaries or liaison personnel to various councils or committees, and this arrangement has resulted in the elimination of duplication, and has increased efficiency. These staff members are available to answer legal questions of councils or committees and to assist in the preparation of statements of policy involving legal issues.

The Department has established contact with executive secretaries and legal counsel for state medical societies. It has also assisted in the preparation of articles and editorials having legal implications. The Department has started an extensive survey dealing with professional liability. In collaboration with the Committee on Medicolegal Problems, information is being assembled on experiences in group professional liability insurance coverage, and claims prevention programs. Your committee is mindful of the importance of these surveys and urges the cooperation of the medical profession.

The Department has continued to promote periodic joint meetings between physicians and lawyers at which subjects of mutual interest are explored. This is a healthy development that should be encouraged by national, state, and local medical and legal organizations. Three American Medical Association regional medicolegal symposiums have been held in which the response has been very gratifying. It is hoped that meetings of this type will be sponsored annually in cooperation with the American Bar Association. Your committee agrees such joint meetings can be effective in reducing areas of misunderstanding that exist between the medical and legal profession and can do much to assure the proper administration of justice in medicolegal cases. Your committee highly commends the Law Department for its accomplishments during the first year of its existence.

Miscellaneous Reports: Your reference committee carefully considered the reports of the Committee on Medicolegal Problems, Committee on Pesticides, Committee on Toxicology, Committee on Research, Committee on Cosmetics, Council on Pharmacy and Chemistry, Council on Rehabilitation, Council on Foods and Nutrition, and Bureau of Investigation. In the opinion of your committee the work of these groups has been carried on actively and in the best interests of the profession. The termination of the seal-acceptance program has allowed many of these groups to broaden their scope and to improve their service to the public and the profession.

Report of Bureau of Medical Economic Research: This Bureau continues to provide accurate data on medicoeconomic problems, and is now undertaking a study of the totality of services which physicians render to the American people. An interesting sidelight of this study is from Bulletin 97, "Ages and Sex Distribution of Hospital Patients," where an unexpected excess of male patients in American hospitals is reported. These studies reveal that federal hospitals account for this excess.

Your committee commends the Bureau in its active participation in support of the Jenkins-Keogh type of bills and the concept of voluntary retirement plans for the self-employed.

Your committee recommends that the scientific and factual reports of this Bureau should be made available in popular and nontechnical language for the enlightenment of the general public on medicoeconomic problems and further recommends to the Board of Trustees that it give careful consideration to this recommendation.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Paul A. Davis, Chairman, Ohio, presented the following report, which was adopted:

Department of Public Relations, Washington Office, and Committee on Legislation: Your reference committee commends the directors of the Department of Public Relations, the Washington Office, and the Committee on Legislation for their fine reports. Your committee does, however, desire to make the following comment concerning "Title III, S. 886," which reads:

> This title of the administration's omnibus health bill would authorize the appropriation of 17 million dollars in gradually increasing annual amounts over a five year period, as grants-in-aid to the states for the vocational training of practical nurses. The federal share of approved projects would be 75% the first and second years and 50% in the remaining three years. The program would be carried out through state boards of vocational education. The position of the Association was one of opposition to the underlying theory of the bill. This position was presented by Dr. Cleon A. Nafe before the Subcommittee on Health of the Committee on Labor and Public Welfare of the Senate on April 14, 1955. The position was taken because of the belief that it was neither necessary nor wise for the federal government to enter the area of state responsibility for vocational education unless an emergency were clearly demonstrated. The Association urged a fact-finding survey.

While your committee feels that there is a shortage of nurses, at the same time it is convinced that there are available funds for this purpose at the local and state levels, already supported under the Vocational Education Act, and therefore recommends that vocational training of practical nurses be encouraged by the state medical societies.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH AND INDUSTRIAL HEALTH

Dr. L. Howard Schriver, Chairman, Ohio, presented the following report, which was adopted:

Report of Council on Industrial Health: Your committee approves that portion of the report dealing with workmen's compensation in its entirety, with one change in verbiage in point 4 under the heading, "Statutory Provisions," which reads "able" and is changed to "qualified."

Your committee approves all of the following items in the report: Medical Relations in Workmen's Compensation, including the Medical Profession's Interest in Workmen's Compensation; Goals of Workmen's Compensation; Implementation of These Goals; Rehabilitation of the Occupationally Disabled; Statutory Provisions; Planned Cooperation from the Medical Profession; Role of Individual Physician; Administrative Supervision; and Indemnity.

Your committee also approves all of the following items in the report: Medical Rating of Physical Impairment; Progress of Preventive Medicine in Industry; Local or Community Approach to Industrial Health Problems; Medical Care for Industrial Workers; Improved Educational Standards; Scientific Development; and Interprofessional Relations.

You will note your reference committee did not take any action on that portion of the report having to do with the "Evaluation of Management and Union Health Centers" because your committee believes this portion of the report was specifically considered by the Reference Committee on Insurance and Medical Service.

Your committee considered Supplementary Report of the Board of Trustees J, on "Physician Selection in Workmen's Compensation," which was pertinent to the Council on Industrial Health, and your committee approves this recommendation with the exception of the change in verbiage as above stated from the word "able" to "qualified."

Your committee compliments the Council on Industrial Health for its excellent and comprehensive report, which was prepared by Dr. Carl M. Peterson, Secretary, prior to his tragic death.

Report of the Council on Mental Health: Your committee approves the report of the Council on Mental Health, which embraces the following items for action and consideration: Conference of Mental Health Representatives of State Medical Associations; Joint Commission on Mental Illness and Health, Inc. (except for an error in the last paragraph, corrected to read October, 1956, instead of October, 1955, as printed); Committee on Alcoholism; Mass Mediums; Headquarters; and Future Plans.

This approval is with the exclusion of that portion of the report on "Licensure or Certification of Clinical Psychologists," which your committee considered in Supplementary Report of Board of Trustees O, on "Clinical Psychologists."

Report of the Bureau of Health Education: Your committee approves this report in its entirety and wishes to direct your attention to the many ramifications of the interests and functions of the Bureau, such as Loan Collections; Manuscripts, Book Reviews, etc.; Radio and Television; Radio and Television from Clinical and Annual Meetings; Local Broadcasts; Health and Physical Fitness Division; Bureau Publications; Meetings and Conferences; Cooperative Relationships; and Joint Committee on Health Problems in Education.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. Lewis A. Alesen, Chairman, California, read the following report, which was adopted:

Report of Council on Rural Health: It is noted that the Council on Rural Health has been very active at the grass roots level as well as in constituent and component societies through its regional directors and their assistants. With the country divided into nine regions and programs suggested to fit the particular requirements of the rural dwellers in those regions, much has been accomplished in the organization and sponsorship of health conferences and in the participation in other activities of the farm organizations. It is particularly commendable that this program has been presented in such a manner as to promote active cooperation between the medical profession and the individuals and farm groups. As a result of these activities, the Council notes rapidly increasing good will and requests for further service. This is public relations of a practical kind and of inestimable value.

Report of Council on Medical Service: In this compact report is found a story that cannot be epitomized because it represents pure essence of devoted service and constant and unceasing activity with tenacity in working toward the stated goals. It is to be observed that the Council on Medical Service during the past year has worked on over 60 projects, with 20 projects completed during the past year.

NOTE: The report of the reference committee on the item entitled Guiding Principles for Evaluating Management and Union Health Centers, in the report of the Council will be found following Resolution No. 26.—ED.

REPORT OF REFERENCE COMMITTEE ON MEDICAL MILITARY AFFAIRS

Dr. Charles H. Richardson Sr., Georgia, presented the following report, which was adopted:

Your reference committee has carefully reviewed the annual report of the Council on National Defense. The committee notes that the Council has established a Committee on Military Medical Affairs and a Committee on Civil Defense and commends the Council for taking this logical and appropriate action. Your reference committee is in accord that the major responsibilities of the Council can be discharged more effectively and expeditiously through these committees.

The committee notes with satisfaction that the Council has taken cognizance of a major problem of the armed forces, namely, the provision for a career incentive program for medical officers. It is abundantly apparent that the career service must be made attractive and that an adequate corps of career medical officers must be recruited and retained if the medical services of the armed forces are to flourish and the "Doctor-Draft" law not be further extended. It is recalled that this House of Delegates at the Atlantic City Annual Meeting, June, 1955, expressed an urgent need to fortify a career incentive program for medical officers and urged that the Department of Defense take appropriate action. We note with admiration and satisfaction that President Elmer Hess in his address before this assembly at its opening session stated that the problem was critical and suggested positive leadership by the American Medical Association in solving this important problem. The Council report discloses that 48% of the authorized regular medical officer positions are unfilled, which depicts the current status of this problem. The proposed career incentive program for medical officers recently promulgated by the Department of Defense is quite obviously a positive step in the right direction and is endorsed in principle. Some of the requirements listed in the Council report are incorporated in the proposed program. They would seem to correct some of the gross inequities of the current situation. Your reference committee urges that the American Medical Association through its Board of Trustees and Council on National Defense actively cooperate with the Department of Defense and offer such assistance as is necessary to implement this program both legislatively and administratively.

Your committee noted with interest the activities of the Council on National Defense in maintaining liaison with physicians in the armed services. This action is a most desirable service carried on by monthly articles prepared by the Council and published in the *U. S. Armed Forces Medical Journal.* Appreciation is expressed to the Department of Defense for its cooperation and active participation in permitting these communications to be published. The Council also should be commended for its efforts in this connection.

Your reference committee endorses the action of the American Medical Association through its Council on National Defense in conducting, on a continuing basis, a survey of discharged medical personnel. This survey provides valuable information on the utilization of physicians in uniform and supplies information of value to the military medical services. In connection with this survey, assistance is furnished to physicians being released from active military service by providing information on available civilian positions. The favorable responses and high participation of the physicians clearly indicates that the program is worthwhile and forms the basis for your committee's endorsement. These services provide a vehicle for contact with the military physicians and gives evidence of the over-all interest of the American Medical Association.

Your reference committee noted with interest that portion of the report pertaining to medical care for dependents of Service personnel. An active discussion took place on this subject with

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Report of Law Department: This is the first report of the Law Department, which was established last year. The Department has continued the medicolegal services rendered by the former Bureau of Legal Medicine and Legislation and has initiated new programs that should be of substantial value to the public and to the medical profession. In addition to their regular legal duties, members of the staff serve as secretaries or liaison personnel to various councils or committees, and this arrangement has resulted in the elimination of duplication, and has increased efficiency. These staff members are available to answer legal questions of councils or committees and to assist in the preparation of statements of policy involving legal issues.

The Department has established contact with executive secretaries and legal counsel for state medical societies. It has also assisted in the preparation of articles and editorials having legal implications. The Department has started an extensive survey dealing with professional liability. In collaboration with the Committee on Medicolegal Problems, information is being assembled on experiences in group professional liability insurance coverage, and claims prevention programs. Your committee is mindful of the importance of these surveys and urges the cooperation of the medical profession.

The Department has continued to promote periodic joint meetings between physicians and lawyers at which subjects of mutual interest are explored. This is a healthy development that should be encouraged by national, state, and local medical and legal organizations. Three American Medical Association regional medicolegal symposiums have been held in which the response has been very gratifying. It is hoped that meetings of this type will be sponsored annually in cooperation with the American Bar Association. Your committee agrees such joint meetings can be effective in reducing areas of misunderstanding that exist between the medical and legal profession and can do much to assure the proper administration of justice in medicolegal cases. Your committee highly commends the Law Department for its accomplishments during the first year of its existence.

Miscellaneous Reports: Your reference committee carefully considered the reports of the Committee on Medicolegal Problems, Committee on Pesticides, Committee on Toxicology, Committee on Research, Committee on Cosmetics, Council on Pharmacy and Chemistry, Council on Rehabilitation, Council on Foods and Nutrition, and Bureau of Investigation. In the opinion of your committee the work of these groups has been carried on actively and in the best interests of the profession. The termination of the seal-acceptance program has allowed many of these groups to broaden their scope and to improve their service to the public and the profession.

Report of Bureau of Medical Economic Research: This Bureau continues to provide accurate data on medicoeconomic problems, and is now undertaking a study of the totality of services which physicians render to the American people. An interesting sidelight of this study is from Bulletin 97, "Ages and Sex Distribution of Hospital Patients," where an unexpected excess of male patients in American hospitals is reported. These studies reveal that federal hospitals account for this excess.

Your committee commends the Bureau in its active participation in support of the Jenkins-Keogh type of bills and the concept of voluntary retirement plans for the self-employed.

Your committee recommends that the scientific and factual reports of this Bureau should be made available in popular and nontechnical language for the enlightenment of the general public on medicoeconomic problems and further recommends to the Board of Trustees that it give careful consideration to this recommendation.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Paul A. Davis, Chairman, Ohio, presented the following report, which was adopted:

Department of Public Relations, Washington Office, and Committee on Legislation: Your reference committee commends the directors of the Department of Public Relations, the Washington Office, and the Committee on Legislation for their fine reports. Your committee does, however, desire to make the following comment concerning "Title III, S. 886," which reads:

> This title of the administration's omnibus health bill would authorize the appropriation of 17 million dollars in gradually increasing annual amounts over a five year period, as grants-in-aid to the states for the vocational training of practical nurses. The federal share of approved projects would be 75% the first and second years and 50% in the remaining three years. The program would be carried out through state boards of vocational education. The position of the Association was one of opposition to the underlying theory of the bill. This position was presented by Dr. Cleon A. Nafe before the Subcommittee on Health of the Committee on Labor and Public Welfare of the Senate on April 14, 1955. The position was taken because of the belief that it was neither necessary nor wise for the federal government to enter the area of state responsibility for vocational education unless an emergency were clearly demonstrated. The Association urged a fact-finding survey.

While your committee feels that there is a shortage of nurses, at the same time it is convinced that there are available funds for this purpose at the local and state levels, already supported under the Vocational Education Act, and therefore recommends that vocational training of practical nurses be encouraged by the state medical societies.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH AND INDUSTRIAL HEALTH

Dr. L. Howard Schriver, Chairman, Ohio, presented the following report, which was adopted:

Report of Council on Industrial Health: Your committee approves that portion of the report dealing with workmen's compensation in its entirety, with one change in verbiage in point 4 under the heading, "Statutory Provisions," which reads "able" and is changed to "qualified."

Your committee approves all of the following items in the report: Medical Relations in Workmen's Compensation, including the Medical Profession's Interest in Workmen's Compensation; Goals of Workmen's Compensation; Implementation of These Goals; Rehabilitation of the Occupationally Disabled; Statutory Provisions; Planned Cooperation from the Medical Profession; Role of Individual Physician; Administrative Supervision; and Indemnity.

Your committee also approves all of the following items in the report: Medical Rating of Physical Impairment; Progress of Preventive Medicine in Industry; Local or Community Approach to Industrial Health Problems; Medical Care for Industrial Workers; Improved Educational Standards; Scientific Development; and Interprofessional Relations.

You will note your reference committee did not take any action on that portion of the report having to do with the "Evaluation of Management and Union Health Centers" because your committee believes this portion of the report was specifically considered by the Reference Committee on Insurance and Medical Service.

Your committee considered Supplementary Report of the Board of Trustees J, on "Physician Selection in Workmen's Compensation," which was pertinent to the Council on Industrial Health, and your committee approves this recommendation with the exception of the change in verbiage as above stated from the word "able" to "qualified."

Your committee compliments the Council on Industrial Health for its excellent and comprehensive report, which was prepared by Dr. Carl M. Peterson, Secretary, prior to his tragic death.

Report of the Council on Mental Health: Your committee approves the report of the Council on Mental Health, which embraces the following items for action and consideration: Conference of Mental Health Representatives of State Medical Associations; Joint Commission on Mental Illness and Health, Inc. (except for an error in the last paragraph, corrected to read October, 1956, instead of October, 1955, as printed); Committee on Alcoholism; Mass Mediums; Headquarters; and Future Plans.

This approval is with the exclusion of that portion of the report on "Licensure or Certification of Clinical Psychologists," which your committee considered in Supplementary Report of Board of Trustees O, on "Clinical Psychologists."

Report of the Bureau of Health Education: Your committee approves this report in its entirety and wishes to direct your attention to the many ramifications of the interests and functions of the Bureau, such as Loan Collections; Manuscripts, Book Reviews, etc.; Radio and Television; Radio and Television from Clinical and Annual Meetings; Local Broadcasts; Health and Physical Fitness Division; Bureau Publications; Meetings and Conferences; Cooperative Relationships; and Joint Committee on Health Problems in Education.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. Lewis A. Alesen, Chairman, California, read the following report, which was adopted:

Report of Council on Rural Health: It is noted that the Council on Rural Health has been very active at the grass roots level as well as in constituent and component societies through its regional directors and their assistants. With the country divided into nine regions and programs suggested to fit the particular requirements of the rural dwellers in those regions, much has been accomplished in the organization and sponsorship of health conferences and in the participation in other activities of the farm organizations. It is particularly commendable that this program has been presented in such a manner as to promote active cooperation between the medical profession and the individuals and farm groups. As a result of these activities, the Council notes rapidly increasing good will and requests for further service. This is public relations of a practical kind and of inestimable value.

Report of Council on Medical Service: In this compact report is found a story that cannot be epitomized because it represents pure essence of devoted service and constant and unceasing activity with tenacity in working toward the stated goals. It is to be observed that the Council on Medical Service during the past year has worked on over 60 projects, with 20 projects completed during the past year.

NOTE: The report of the reference committee on the item entitled Guiding Principles for Evaluating Management and Union Health Centers, in the report of the Council will be found following Resolution No. 26.—ED.

REPORT OF REFERENCE COMMITTEE ON MEDICAL MILITARY AFFAIRS

Dr. Charles H. Richardson Sr., Georgia, presented the following report, which was adopted:

Your reference committee has carefully reviewed the annual report of the Council on National Defense. The committee notes that the Council has established a Committee on Military Medical Affairs and a Committee on Civil Defense and commends the Council for taking this logical and appropriate action. Your reference committee is in accord that the major responsibilities of the Council can be discharged more effectively and expeditiously through these committees.

The committee notes with satisfaction that the Council has taken cognizance of a major problem of the armed forces, namely, the provision for a career incentive program for medical officers. It is abundantly apparent that the career service must be made attractive and that an adequate corps of career medical officers must be recruited and retained if the medical services of the armed forces are to flourish and the "Doctor-Draft" law not be further extended. It is recalled that this House of Delegates at the Atlantic City Annual Meeting, June, 1955, expressed an urgent need to fortify a career incentive program for medical officers and urged that the Department of Defense take appropriate action. We note with admiration and satisfaction that President Elmer Hess in his address before this assembly at its opening session stated that the problem was critical and suggested positive leadership by the American Medical Association in solving this important problem. The Council report discloses that 48% of the authorized regular medical officer positions are unfilled, which depicts the current status of this problem. The proposed career incentive program for medical officers recently promulgated by the Department of Defense is quite obviously a positive step in the right direction and is endorsed in principle. Some of the requirements listed in the Council report are incorporated in the proposed program. They would seem to correct some of the gross inequities of the current situation. Your reference committee urges that the American Medical Association through its Board of Trustees and Council on National Defense actively cooperate with the Department of Defense and offer such assistance as is necessary to implement this program both legislatively and administratively.

Your committee noted with interest the activities of the Council on National Defense in maintaining liaison with physicians in the armed services. This action is a most desirable service carried on by monthly articles prepared by the Council and published in the *U. S. Armed Forces Medical Journal.* Appreciation is expressed to the Department of Defense for its cooperation and active participation in permitting these communications to be published. The Council also should be commended for its efforts in this connection.

Your reference committee endorses the action of the American Medical Association through its Council on National Defense in conducting, on a continuing basis, a survey of discharged medical personnel. This survey provides valuable information on the utilization of physicians in uniform and supplies information of value to the military medical services. In connection with this survey, assistance is furnished to physicians being released from active military service by providing information on available civilian positions. The favorable responses and high participation of the physicians clearly indicates that the program is worthwhile and forms the basis for your committee's endorsement. These services provide a vehicle for contact with the military physicians and gives evidence of the over-all interest of the American Medical Association.

Your reference committee noted with interest that portion of the report pertaining to medical care for dependents of Service personnel. An active discussion took place on this subject with comments from a large array of interested physicians in attendance. It is concluded that the Board of Trustees is completely cognizant of the problem and has taken a very active role in negotiating with the Department of Defense along the lines of obtaining a solution through an acceptable prepaid medical care program and utilization, where feasible, of civilian practitioners and civilian medical treatment facilities.

Your reference committee notes with satisfaction the two civil defense meetings held annually by the Council on National Defense and commends its Committee on Civil Defense together with the Council staff for the effective manner in which the medical activities of civil defense are made an important and continuing aspect of medical practice. With the contemplated delivery of 200-bed emergency Civil Defense hospitals to local communities, your reference committee urges that state and county medical societies give renewed interest and emphasis to the importance of local participation in Civil Defense training and the furnishing of medical leadership in solving the problems of community disaster medical care.

REPORT OF REFERENCE COMMITTEE ON SECTIONS AND SECTION WORK

Dr. Gilson Colby Engel, Chairman, Pennsylvania, read the following report, which was adopted:

Report of Council on Scientific Assembly: The report of the Council on Scientific Assembly shows that it held five meetings during the past year and discussed many problems confronting it, such as publication of scientific exhibits, attendance at section meetings, deadline for requests to read section papers, requests for new sections, and the setting up of a panel on mental health. It also changed the personnel of the Fracture Committee and considered the Ciba reports and closer affiliation with the sections, and elected a new chairman, Dr. Alphonse McMahon of St. Louis, to replace Dr. Henry R. Viets of Boston, who resigned. Dr. Viets served faithfully and energetically for eight years.

The Council reported also on the very successful Miami Clinical Meeting and the Atlantic City Annual Meeting. Both meetings had excellent presentations and large attendance, at both the official presentations and the scientific exhibits. Your reference committee wishes to commend this Council for its excellent work under the leadership of Dr. Henry R. Viets, who has served the Council and the American Medical Association for many years with devotion, bringing inspiration and imagination to the many programs he has supervised. This has been a service to the Association and the doctors but above all an outstanding health service to the people of America. Your reference committee congratulates the Council on the election of Dr. Alphonse McMahon as the new chairman and knows he will bring vision and leadership to the Council.

Report of Bureau of Exhibits: The report of the Bureau of Exhibits showed it to be exceedingly active in preparation for the clinical and annual meetings under the Council on Scientific Assembly. It has developed 47 exhibits for loan which portray various phases of activities in which the various departments of the Association have become interested. Two hundred sixty-seven requests were complied with representing 11,881 exhibit days. The Bureau has exhibited medical exhibits at 15 state medical society meetings and at meetings of 20 scientific organizations allied with medicine. It has participated in health exhibits, and with the Dade County Medical Society of Florida cosponsored a wonderful Health Fair in Miami which attracted 43,000 people in four days. The Bureau has also been actively cooperating with various health museums over the country in the interest of better health education to lay groups.

The Committee on Motion Pictures and Medical Television reports that the Film Library, with 14 new additions, total 563 copies of 123 titles—3,141. Loans were made to different groups. The Committee also reviewed 81 films dealing with medicine, and 73 of these reviews have been published in THE JOURNAL. There has been a growing interest in films and television, and this Committee is keeping abreast of the changing times and the lay and professional demands. The Committee is be congratulated for its constructive contribution.

The Bureau of Exhibits has made an outstanding contribution, and your reference committee feels it should be congratulated on a job well done for the profession and in the interest of better health for the citizens of America.

Supplementary Reports of the Board of Trustees A-W

Supplementary reports of the Board of Trustees were presented to the House by members of the Board as follows: Supplementary report A by Dr. Leonard W. Larson; D by Dr. Thomas P. Murdock; F by Dr. James R. McVay; G by Dr. Julian P. Price; J by Dr. James R. Reuling; K by Dr. Edwin S. Hamilton; and the remainder by Dr. Gunnar Gundersen, Chairman. The reports were referred by the Vice Speaker to reference committees as indicated at the beginning of each report.

A. PROGRESS REPORT OF COMMISSION ON MEDICAL CARE PLANS

Supplementary report A was referred to the Reference Committee on Insurance and Medical Service.

NOTE: The Progress Report of the Commission on Medical Care Plans was printed in THE JOURNAL, Dec. 3, 1955, pages 1370-1379.—ED.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. Lewis A. Alesen, Chairman, California, read the following report, which was adopted:

Supplementary Report A on Progress Report of Commission on Medical Care Plans: While this is a progress report, your reference committee wishes to direct attention to the meticulous and painstaking manner in which the material has been assembled and reduced to charts which are easily understandable with a text packed full of most useful information. This excellent work is to be most highly commended.

B. SOCIAL SECURITY COVERAGE OF PHYSICIANS

Supplementary report B was referred to the Reference Committee on Legislation and Public Relations.

In accordance with the recommendation made by the House of Delegates at the Atlantic City meeting, the Board of Trustees prepared a statement for the purpose of acquainting the physicians of the country with the reasons why the American Medical Association is opposed to compulsory inclusion of physicians under the Federal Old-Age and Survivors Insurance program. So as to give wide publicity to the statement, it was published in THE JOURNAL of the American Medical Association, Nov. 26, 1955, page 1302.

NOTE: Because of the prior publication of the statement contained in Supplementary report B, it is not reproduced in this abstract but will be included in the official *Proceedings*.—ED.

REPORT ON REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Paul A. Davis, Chairman, Ohio, read the following report, which was adopted after amendment of the substitute resolution offered therein:

Your committee has considered supplementary reports B, M, and U, and Resolutions No. 8, 9, 30, and 35, and submits as a substitute one resolution combining the intent of all:

WHEREAS, The Old-Age and Survivors Insurance section of the Social Security Act has become an important source of retirement and survivors' security for the American people, and Social Security payments represent an important element of personal income in the national economy; and

WHEREAS, Liberalizing amendments to the Social Security Act have been so frequently enacted in election years as to justify the inference that political expediency rather than sound public policy was their motivation; and

WHEREAS, The Social Security Amendments of 1955 (H. R. 7225, 84th Congress), now pending before the Committee on Finance of the United States Senate, are a typical example of an irresponsible political approach to amendment of the Social Security Act, in that this measure was conceived in secret in the Committee on Ways and Means, adopted in brief executive session without public hearings despite the request of many witnesses to be heard, rushed to the floor of the House of Representatives before the report of the Committee on Ways and Means was available, pressured through the House by a maneuver which by-passed the Committee on Rules, permitted no amendments, and allowed only 40 minutes of debate; and

WHEREAS, This measure includes sections which would authorize payment of federal cash disability benefits to selected individuals under the Old-Age and Survivors Insurance section of the Social Security Act as a matter of statutory right and without regard for the need of these individuals for cash assistance, and such cash benefits contingent on continued disability are known to be contrary to sound medical practice in the treatment and rehabilitation of the physically and mentally disabled; and

WHEREAS, The American system of the private practice of medicine, keeping inviolate the physician-patient relationship, has brought to the American people the world's highest standard of medical care, any interference by a third party, government or private, with the physician-patient relationship will destroy the principle on which our successful system of medical care has been built and will lead inevitably to the deterioration of the quality of medical care available to the American people; and

WHEREAS, There has never been an adequate, objective, unbiased study of the nature, cost, and scope of the Old-Age and Survivors Insurance section of the Social Security Act and its economic, social, and political impact on the American people; therefore be it

Resolved, That the American Medical Association reiterate in the strongest possible terms its determination to resist any encroachment on the American system of medical practice which would be detrimental to our patients, the American people; and be it further

Resolved, That the American Medical Association urge and support the creation of a well-qualified commission, governmental, private, or both, to make a thorough, objective, and impartial study of the economic, social, and political impact of Social Security, both medical and otherwise, and that the facts developed by such a study should be the sole basis for objective, nonpolitical improvements to the Social Security Act for the benefit of all of the American people; and be it further

Resolved, That the American Medical Association pledges its wholehearted cooperation in such a study of Social Security in the United States, and will devote its best efforts to procuring and providing full information on the medical aspects of disability, rehabilitation, and medical care of the disabled; and be it further

Resolved, That copies of this resolution be transmitted to the President of the United States, to all members of the Cabinet, to all members of the Congress, and to all constituent state medical associations.

C. STATE JOURNAL ADVERTISING BUREAU

Supplementary report C was referred to the Reference Committee on Reports of Board of Trustees and Secretary.

At its November, 1955, meeting the Advisory Committee to the State Journal Advertising Bureau recommended that the Bureau be separated from the American Medical Association and be given full autonomy. The Board of Trustees agrees with this recommendation and feels that the Advertising Bureau has reached a point where it can and should carry on its business as a separate entity.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Homer M. Izumi, Chairman, Hawaii, presented the following report, which was adopted:

Supplementary Report C on State Journal Advertising Bureau: Your committee concurs in the recommendation of the Board of Trustees and recommends that it be adopted.

D. COUNCIL ON MEDICAL PHYSICS

Supplementary report D was referred to the Reference Committee on Reports of Board of Trustees and Secretary.

Following the Atlantic City meeting in June, 1955, a thorough review and study was made of the report of the Special Committee on Rehabilitation and the recommendation adopted by the House of Delegates, i. e.:

> ". . . that (1) the Council on Physical Medicine and Rehabilitation be renamed the Council on Rehabilitation; (2) that it be reorganized so that all branches of medicine interested in the broad field of rehabilitation shall be represented in the membership of the Council, and (3) that a committee be appointed to carry on activities in the field of apparatus, instruments and devices."

The Committee on Scientific Councils met with representatives of the former Council on Physical Medicine and Rehabilitation and other interested individuals of the several councils of the Association whose work in any way touches on rehabilitation. It was the consensus of all that it would be advisable to establish a Council on Medical Physics, instead of a Council on Rehabilitation. The functions of the proposed Council would be to "carry on activities in the field of apparatus, instruments, and devices." It is believed that rehabilitation problems should be assigned to an interassociation liaison group, with representation from all interested American Medical Association councils and committees dealing with the subject.

The Board of Trustees is in agreement with the recommendations of its Committee on Scientific Councils and submits them, with its approval, to the House of Delegates for action.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Homer M. Izumi, Chairman, Hawaii, read the following report, which was adopted:

Supplementary Report D on Council on Medical Physics: Your committee has carefully considered this report and approves the establishment of such a council. However, while the committee believes the name "Medical Physics" is subject to misinterpretation it was unable to suggest a more appropriate name and therefore recommends adoption of this title.

With regard to the rehabilitation problem, your committee recommends the rewording of the next to the last sentence of the report. The word "intra-association" in place of "inter-association" and the addition of the word "sections" after the word "councils," which would make this sentence read as follows: "It is believed that rehabilitation problems should be assigned to an intra-association liaison group with representation from all interested American Medical Association councils, sections, and committees dealing with the subject."

E. HISTORY OF MEDICINE SECTION

Supplementary report E was referred to the Reference Committee on Sections and Section Work.

Resolution No. 24 requesting a study of the feasibility and the desirability of a Section on the History of Medicine in the Scientific Assembly of the American Medical Association, introduced at the June, 1955, meeting, was referred by the Board of Trustees to the Council on Scientific Assembly. The Council reported that there have been three sessions on this subject in the Section on Miscellaneous Topics at Association meetings and the attendance was small at each one. In 1947 there were 50 persons present and, in 1948, 30 persons. It recommended, therefore, that a Section on the History of Medicine be not established but that time be granted for a Session on the History of Medicine in the Section on Miscellaneous Topics from time to time.

The Board of Trustees adopted the recommendation of the Council on Scientific Assembly and submits it to the House of Delegates for consideration and action.

REPORT OF REFERENCE COMMITTEE ON SECTIONS AND SECTION WORK

Dr. Gilson Colby Engel, Chairman, Pennsylvania, presented the following report, which was adopted:

Supplementary Report E on History of Medicine Section: Your reference committee considered supplementary report of the Board of Trustees E dealing with the History of Medicine Section. This concerned itself with the establishment of a Section on the History of Medicine. Your committee, because of statistics of the past showing poor attendance at such sessions, recommends that a Section on the History of Medicine be not established at this time, but that consideration should be given for a session on the History of Medicine in the Section on Miscellaneous Topics from time to time.

F. RESOLUTION ON MEDICAL PRACTICES

Supplementary report F was referred to the Reference Committee on Insurance and Medical Service.

At its meeting in Atlantic City in June, 1955, the House of Delegates approved in principle Resolution No. 41, calling for the creation of a subcommittee to work on a relative value scale, the adoption of a program of public education on the value of diagnostic and medical work, the encouragement of specialty boards in medicine to reappraise regulations restricting the practice of board diplomates and the discouragement of arbitrary restrictions by hospitals against general practitioners. The resolution further requested the House of Delegates to ask the American Hospital Association to request boards of trustees of hospitals to refrain from demanding that medical staff members submit to an audit of their books for the purpose of detecting fee splitting and that the hospital association be assured that medicine is ready and able to solve satisfactorily its own problems.

The resolution was referred by the Board of Trustees to the Judicial Council, which agreed that the programs suggested in the resolution do not in any way conflict with established ethical policies of the Association and may be properly undertaken by the Board. The resolution was then referred to the Council on Medical Service. The Council submitted the following report, which was accepted by the Board for transmittal to the House of Delegates:

1. Since there are at least three experiments, other than that of the thoracic surgeons, concerned with developing relative value schedules now in process, the Council believes these should be reviewed before any subcommittee "... to work on a relative value scale ..." is created;
2. With reference to ". . . a program of public education . . . on the value of diagnostic and medical work . . . to increase the public's appreciation of non-surgical work . . . ", the Council suggests that all nonsurgical groups be asked for their suggestions and cooperation in carrying out such a public education program;
3. The Council is in full accord with the suggestion relative to a reappraisal of the practice restrictions of the various specialty boards;
4. The Council is also in accord with the recommendation that the American Medical Association should continue to discourage arbitrary restrictions by hospitals against general practitioners; and finally
5. The Council concurs in the statement that organized medicine is ready, willing, and able to solve satisfactorily its own problems, and such assurance should be given to the American Hospital Association or any other group concerning itself with such problems.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. Lewis A. Alesen, Chairman, California, read the following report, which, after amendment of the substitute resolution by the addition to the last "resolved" of the words, "and promptly to the editor of each state medical journal," and further amendment by the insertion at the beginning of the fifth "resolved" of the phrase, "subject to review by counsel of the Association," was adopted:

Supplementary Report of Board of Trustees F and Resolutions No. 11, 12, 20, and 28: Because each of these resolutions and the report to the Board of Trustees of the Committee on Medical Practices (Truman committee) all dealt with the same general subject, they were discussed as one subject, and the various speakers referred to the several resolutions and to the report of the special committee frequently during the discussion. Forty-four speakers addressed themselves to this problem and while, as stated above, there was some difference of opinion on the part of a small minority, at the end of the discussion there seemed to be unusual agreement on fundamental principles and the objectives to be achieved by the resolutions presented. Consequently, your reference committee will present Supplementary Report F of the Board of Trustees with only one modification and a recommendation that, as amended, it be approved. This modification consists in the deletion of the first numbered paragraph, which reads: "Since there are at least three experiments, other than that of the thoracic surgeons, concerned with developing relative value schedules now in process, the Council (on Medical Service) believes these should be reviewed before any subcommittee '. . . . to work on a relative value scale . . .' is created";

Resolutions No. 11, 12, 20, and 28 all deal with the same subject and each of these resolutions emphasizes some special phase. After careful consideration your committee presents the following substitute resolution:

WHEREAS, The report of the Committee on Medical Practices was presented to this House of Delegates in June, 1955, in which the committee has completed its intensive study of the basic causes leading to certain unethical practices and to unfavorable publicity; and

WHEREAS, The findings and recommendations of this committee deserve intensive study by the physicians of this country and by the American Medical Association, who should consider their rather wide ramifications and the feasibility of their practical application; and

WHEREAS, The House of Delegates of the American Medical Association in 1947 resolved that "It was never intended that staff appointments in hospitals generally, or even in hospitals approved for residencies, should be limited to board certified physicians as is now the policy in some hospitals. Such policies, if practiced extensively, are detrimental to the health of the people and therefore to American medicine. Hospital staff appointments should depend on the qualifications of physicians to render proper care to hospitalized patients as judged by the professional staff of the hospital and not on certification or special society membership."; now therefore be it

Resolved, That a Continuing Committee on Medical Practice be created in the American Medical Association to conduct a study of the relative value of diagnostic, medical, and surgical services and to report its findings and recommendations to this House in the same manner as is now followed by other committees and councils of the Association; and be it further

Resolved, That this committee shall consist of five members of the House appointed by the Speaker, three of whom shall be general practitioners; the terms of the members of this committee shall ultimately be three years, arranged at the discretion of the Speaker in his original and subsequent appointments so that these terms shall be staggered; and be it further

Resolved, That this committee be directed to utilize all possible means to stimulate the formation of a department of general practice in each medical school; and be it further

Resolved, That the American Medical Association approve of the medical school teaching programs which afford the medical student opportunity for experience in the general practice of medicine; and be it further

Resolved, That, subject to review by counsel of the American Medical Association, the representatives of the Association on the Joint Commission on Accreditation of Hospitals be instructed to stimulate action by that body leading to the warning, provisional accreditation, or removal of accreditation of community or general hospitals, which exclude or arbitrarily restrict hospital privileges for generalists as a class regardless of their individual professional competence, after appeal to the Commission by the county medical society concerned; and be it further

Resolved, That this committee cooperate in every way and assist the Public Relations Department of the American Medical Association to present a program of public education designed to bring about a better understanding of all fields of medical practices; and be it further

Resolved, That this committee use its full influence to discourage any arbitrary restrictions by hospitals against general practitioners as a group or as individuals; and be it further

Resolved, That a copy of this resolution be sent to the American College of Surgeons, the American College of Physicians, the American Academy of Pediatrics, the American Academy of Obstetrics and Gynecology, the American Academy of General Practice, the American Hospital Association, the Catholic Hospital Association, the American Protestant Hospital Association, the chief of staff of every hospital in the United States and its territories, the deans of each medical school, and promptly to the editor of each state medical journal.

G. IMMUNE GLOBULIN (HUMAN)

Supplementary report G was referred to the Reference Committee on Hygiene, Public Health, and Industrial Health.

At its meeting in Atlantic City in June, 1955, the House of Delegates approved Resolution No. 42, which on the basis of disapproval by the Council on Pharmacy and Chemistry as well as producers of immune globulin (Human) advocated changing the name of this product from "Poliomyelitis Immune Globulin (Human)" to its earlier designation of "Immune Globulin (Human)." The Board of Trustees referred the resolution to the Council on Pharmacy and Chemistry for its official attitude toward the designations mentioned therein and received the following memorandum:

The designation "Immune Serum Globulin (Human)", not "Immune Globulin (Human)" is the correct U. S. P. terminology for the nonstandardized measles prophylactic which is commonly referred to in the literature as gamma globulin. On the other hand, gamma globulin which is standardized for polio antibody content has been given the more specific designation "Poliomyelitis Immune Globulin (Human)" by the National Institutes of Health of the Public Health Service. The latter is recognized for use in the passive immunization of poliomyelitis. Thus although both preparations are gamma globulin and have some features in common, different names appear necessary to distinguish the polio-standardized from the nonstandardized product. If there was a suitable laboratory method for standardizing gamma globulin for measles antibody, such a preparation could then be specifically designated as "Measles Immune Globulin (Human)" instead of "Immune Serum Globulin (Human)". The chief purpose of affixing a specific designation for the polio material apparently is to avoid the unwarranted use of nonstandardized gamma globulin for passive immunization against poliomyelitis. In summary, the Council has agreed with the National Institutes of Health that the distinctive designation "Poliomyelitis Immune Globulin (Human)" should be applied to a product which is promoted for passive immunization against poliomyelitis and standardized for polio antibody content. Accordingly, the Council has recognized this terminology as being appropriate.

The Board of Trustees wishes to refer this memorandum from the Council on Pharmacy and Chemistry to the House of Delegates for appropriate action with respect to the nomenclature of the product in question.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

Dr. L. Howard Schriver, Chairman, Ohio, read the following report, which was adopted:

Supplementary Report G on Immune Globulin (Human): Your committee, after hearing many witnesses, approved this report, but recommends, however, a change in the nomenclature from "Poliomyelitis Immune Globulin (Human)" to "Poliomyelitis Standardized Immune Globulin (Human)" to differentiate nonstandardized globulin which is used in the treatment of measles.

H. Commission on Chronic Illness Newsletter

Supplementary report H was referred to the Reference Committee on Reports of Board of Trustees and Secretary.

In June, 1956, the Commission on Chronic Illness will have completed the task assigned to it. The American Medical Association, in an effort to carry on the excellent work of the commission in the field of chronic illness, offered to continue the Newsletter distributed by that agency, and the offer was accepted by the Commission. The Newsletter will continue to follow the pattern set by the commission and will be under the auspices of the Council on Medical Service. The Council will be assisted by an editorial committee. It is hoped that those who receive the Newsletter will find it as interesting and useful as in the past.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Homer M. Izumi, Chairman, Hawaii, submitted the following report, which was adopted:

Supplementary Report H on Commission on Chronic Illness Newsletter is purely informative and your reference committee recommends its acceptance.

I. Improvement in Patient Care

Supplementary report I was referred to the Reference Committee on Hygiene, Public Health, and Industrial Health.

At a meeting of the Health Resources Advisory Committee, the following resolution was adopted and referred to the Board of Trustees for consideration and action:

> Whereas, *The medical profession recognizes the tremendous advances* which have been made in the improvement of patient care through new scientific knowledge and skills, particularly in medicine; and
>
> Whereas, These advances have increased the complexity of problems regarding the utilization of skilled personnel and hospital services; and
>
> Whereas, These advantages should be utilized for the improvement of the care of patients; therefore be it
>
> *Resolved*, That the physicians of the United States accept the responsibility of doing everything possible to improve patient care, cooperate with all groups involved in improvement of patient care, and accept the responsibility for providing the necessary leadership for establishing Joint *Committees for the Improvement of the Care of the Patient at state and* local levels.

The resolution was approved by the Board of Trustees for referral to the House of Delegates for its action.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

Dr. L. Howard Schriver, Chairman, Ohio, read the following report, which was adopted:

Supplementary Report I on Improvement in Patient Care: Supplementary report I of the Board of Trustees originated at a meeting of the Health Resources Advisory Committee of the Office of Defense Mobilization. Your committee recommends that the resolution contained in this report be referred back to the Board of Trustees for definition and clarification of what groups will constitute the joint committee, and recommends consultation with representatives of the College of American Pathologists.

J. Physician Selection in Workmen's Compensation

Supplementary report J was referred to the Reference Committee on Hygiene, Public Health, and Industrial Health.

The following recommendation with respect to physician selection in workmen's compensation was made by the Council on Industrial Health and received the approval of the Board of Trustees:

> ". . . *that the appropriate official* medical organizations in each workmen's compensation jurisdiction examine and, where necessary, seek adoption of statutory provisions to the end that all patients subject to workmen's compensation laws have the right to accept physicians' services provided by employers or to select another attending physician from a register of all other physicians in the community willing and able to perform the essential services."

The Council's recommendation is hereby transmitted to the House of Delegates for appropriate action.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

The report of the reference committee on supplementary report J will be found in the fifth paragraph of its report on the report of the Council on Industrial Health on page 1649 of this issue of The Journal.

K. World Medical Association Meeting

Supplementary report K was referred to the Reference Committee on Reports of Boards of Trustees and Secretary.

The Ninth Annual General Assembly of the World Medical Association was held in Vienna during the latter part of September of this year. Vienna is an impressive city for a medical meeting and those in attendance will long remember the hospitality and graciousness of the people, as well as the beauty of the city. Many topics were discussed, the one creating the most interest being social security. Although the words "social security" may be defined and applied differently in various parts of the world, there is never any difference of opinion at the assemblies about what the delegates have in mind. They are ever mindful of the need for providing the best possible medical care to their patients. All are united, however, in opposition to unnecessary interference by a government in medical care plans, and they resent, apparently without exception, any attempts on the part of government officials to interject themselves arbitrarily between the doctor and his patient. Considerable discussion was devoted to the International Social Security Association, a body that is allied to the International Labour Office and is dedicated to the extension of social security coverage. This body has adopted 15 principles that, if enacted in any country, would completely subject the doctor and his patient to government control. The officers of the World Medical Association have led an unceasing fight against such control. Details of the deliberations of the council and of the delegates at the assembly will be published in the *World Medical Journal.*

The financial affairs of the World Medical Association are a matter of concern. Much help has been provided by the physicians of America and the drug industry, as well as others, but it is hoped that more physicians in America will join the United States Supporting Committee. Dues are $10 and will permit any doctor to be prepared for participation in the 10th General Assembly, which will be held in Cuba in October, 1956. It is also a small sum to pay for the returns that stem from the work of the association. The advancement of medical knowledge and the continuation of freedom for medical practice are just two of the benefits that the World Medical Association is striving to provide.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Homer M. Izumi, Chairman, Hawaii, read the following report, which was adopted:

Supplementary Report K on World Medical Association: Your committee whole-heartedly supports the sentiment of the Board of Trustees in urging that many more American physicians join the United States Committee and give their support to this worthy cause.

L. Report of Committee to Recommend Guides for Grievance or Mediation Committees

Supplementary report L was referred to the Reference Committee on Miscellaneous Business.

The Committee to Recommend Guides for Grievance or Mediation Committees, which was appointed in December, 1954, composed of Drs. John P. Culpepper Jr., Chairman, Frank D. Costenbader, Keith Frankhauser, Cleon A. Nafe, and George A. Unfug, has undertaken an exhaustive survey and study required by action of the House of Delegates on Resolutions No. 17 and No. 26 at the Miami meeting in December, 1954.

The committee reviewed all available data and developed new information through staff field work for the purpose of preparing guides rather than standards for the organization and operation of grievance or mediation committees, leaving the details as to the organization and operation of component county and district society committees to the constituent state and territorial associations. On the basis of its findings, the committee submitted recommendations for Guides for Grievance Committees of Constituent Associations, with full recognition that some variations may be made by each state association to fit its own requirements. The committee believes that these guides are equally applicable to the organization and operation of component society grievance committees.

The complete report of the committee was carefully studied by the Board of Trustees and was approved for transmission to the House of Delegates with the recommendation that it be adopted. The Board also recommends that, if adopted, the guides be published in booklet form for distribution to the constituent associations and that, in accordance with its wishes, the committee be discharged following publication of the recommended brochure.

GUIDES FOR THE ORGANIZATION OF GRIEVANCE COMMITTEES FOR CONSTITUENT ASSOCIATIONS

Background: In December, 1949, the House of Delegates adopted a resolution introduced by Dr. J. B. Lukins of Kentucky, which stated in part: "That this House of Delegates hereby commends those constituent state associations that have already established grievance committees to hear any complaints of the public and urges that all constituent associations adopt comparable programs . . ."

Since that time, the Council on Medical Service has continually studied the development of this movement and has issued periodic reports designed to keep the profession informed of the progress of medical associations in carrying out the original intent of the Lukins resolution. In this work the Council prepared and published three separate studies, Medical Society Grievance Committees—Their Development and Function, December, 1950; Medical Society Grievance Committees—a Progress Report, January, 1952; and Medical Society Grievance Committees—Component Societies, 1953. According to studies then available, all of the 48 state medical associations, the Medical Society of the District of Columbia, and the Hawaii Medical Association had provided in some formal manner for the hearing of complaints from the public. The latest study of county societies, 1955, shows that almost 700 grievance committees are in operation.

These studies demonstrated such wide variation in the methods of organization and operation of these committees as to require clarification and definition to eliminate confusion on the part of the medical profession and the public as to the purposes and objectives of such committees.

In addition, the effectiveness of such committees remained unmeasured, and two resolutions were introduced before the House of Delegates in December, 1954, which read in part as follows:

Resolution No. 17, introduced by Dr. William H. Halley, Colorado:

> *Resolved,* That the Board of Trustees is requested to appoint a nationally representative special committee, to consist of representatives of successful mediation or grievance committees howsoever they may be entitled in the various states, to study this problem and recommend through the Board of Trustees to the House of Delegates such standards as may be promulgated by the American Medical Association as a guide to the organization and functioning of such bodies in the constituent associations and component societies.

Resolution No. 26, introduced by Dr. J. P. Culpepper Jr., Mississippi:

> *Resolved,* That the Board of Trustees appoint a committee of not less than five nor more than 15 representatives from constituent societies in which mediation committees have been effective and useful; this committee shall study and report to the Board of Trustees recommended standards for operation of this service.

The Reference Committee on Miscellaneous Business presented the following report on these resolutions, which was adopted:

> Resolution No. 17 on Grievance Committees, and Resolution No. 26 on Establishing Recommended Standards for Mediation Committees: Your reference committee endorses the principles embodied in Resolutions No. 17 and 26 and recommends to the Board of Trustees that it appoint a committee to study and report to the Board of Trustees recommended standards for operation of this service.

In compliance with this action of the House of Delegates, the Board of Trustees appointed a Committee to Recommend Standards for Grievance or Mediation Committees composed of Drs. J. P. Culpepper Jr., Chairman, Mississippi; George A. Unfug, Colorado; Frank Costenbader, District of Columbia; Keith Frankhauser, Illinois; and Cleon A. Nafe, Indiana. Messrs. Rowland B. Kennedy, executive secretary of the Mississippi State Medical Association; Harvey T. Sethman, executive secretary of the Colorado State Medical Society; and John E. Farrell, Sc.D., executive secretary of the Rhode Island Medical Society, were appointed special assistants to the committee.

After reviewing all available material, the committee felt that its primary concern should be with constituent associations and that it should seek to prepare guides rather than standards for the organization and operation of such committees, leaving the details as to the organization and operation of component county and district society committees to the constituent state and territorial associations. With these two objectives in mind the committee reviewed all available data, developed new information through staff field work, and met in Chicago on three occasions. With the assistance of the staff a detailed survey form was developed and used in visits to 21 constituent associations. In each state survey interviews were conducted with state committee members, officers, employed executives, and others. The information obtained was summarized and reviewed at Committee meetings. The staff and committee chairman met on several additional occasions to prepare preliminary reports to the committee itself.

Early in this study the committee appreciated the fact that its membership had been selected to represent geographical and urban-rural differences in thought and a variety of opinions on many aspects of the organization and operation of grievance committees. Despite this, unanimity of opinion on most matters emerged before the third committee meeting was completed. The following findings and recommendations, therefore, represent the combined efforts and thinking of all committee members. These recommendations for Guides for Grievance Committees of Constituent Associations are submitted with full recognition that some variations may be made by each state association to fit its own requirements. These guides are equally applicable to the organization and operation of component society grievance committees.

Purposes of Committees: The purposes of grievance committees are to prevent or resolve misunderstandings, to clarify and adjust differences between physician and patient, and to assist in maintaining the high levels of professional deportment already established by the Principles of Medical Ethics. When grievance committees are properly organized and operated, they can accomplish these objectives. Progressively improving medical public relations will result.

To serve these purposes, grievance committees should be impowered by constituent associations with authority to receive complaints, to investigate, mediate, arbitrate, and where necessary refer them to appropriate bodies for adjudication. Inherent in these purposes is the necessity for consistency, uniformity, and absolute impartiality.

Committee Titles: With a full realization as to both the variety of titles presently used and the reasons underlying the selection of some of these titles, Grievance Committee is unquestionably the most realistic title and the one best understood by the profession and the public. The term "grievance committee" has existed for many years through its uniform use by the American Bar Association and state bar associations. At present 20 state associations use this title; 2 use Board of Supervisors; and 2 use Mediation Committee. Some others used by individual states are Committee on Grievances, Grievance Board, Committee on Patient-Physician Relations, Committee on Medical Defense and Grievance, Judicial Council, Committee on Ethics and Discipline, Council on Professional Ethics, Committee on Professional Relations Public Liaison Committee, Judicial and Professional Relations Committee, Judicial and Advisory Committee, and Welfare Committee.

Any unfortunate disguising of a grievance committee's true purpose by the use of inappropriate titles or by ascribing to it a multiplicity of functions negates realization of valuable benefits to the profession and the public alike. The grievance committee is of such compelling importance in modern medical organization that a special committee, uniformly designated to disclose unmistakably its true function, should be created and maintained by every constituent association for this purpose and this purpose only.

Authorization of Committee: To insure permanence and appropriate authority for a grievance committee, provision should be made in the constitution or bylaws of the constituent association for the creation, maintenance, and authority of the committee. These provisions should clearly state the purpose, extent of authority, and duties of the committee, fix its membership, and determine the tenure of office of each committeeman. A review of current provisions in constitutions and bylaws of the constituent associations discloses a generally inadequate approach to these ends.

Committee Membership: It is recognized that there are extreme variations of both geography and population among the states and territories served by the constituent associations and that these variations explain in part the present range in membership of committees (from 3 to 27 members). Nevertheless, it would seem that successful operation of these committees requires a broad representation not provided normally by less than seven members. In addition, continuity of service can be best attained by a committee serving overlapping terms so that at least half the committee membership is always experienced in its work. It would seem, therefore, that such committees might best be organized with a membership of not less than 7 nor more than 15 members serving overlapping terms of not less than two nor more than four years.

Members of grievance committees hold a continuing and unique responsibility. Therefore, members should not simultaneously serve on any disciplinary or appeal body of the association, since a conflict of interests could defeat successful operation and function of these bodies.

In selecting members for a grievance committee, special consideration must be given to willingness to perform delicate and sometimes odious tasks as a member of an impartial team. In this selection the following points should be considered: Experience in the affairs of medical organization, judicial temperament, varieties in geographical location (urban, rural), type of practice, and age. Any arbitrary method of selecting members of a grievance committee based on only one of the above characteristics or based solely on previous positions held in the medical association is undesirable.

Committee Authority: Certain authorities are essential to the successful operation of a grievance committee. Among these are authority to compel the response, either in writing or by personal appearance, of any member of the medical organization, authority to initiate investigations on the committee's own motion, and authority to file charges in the name of the committee before an appropriate judicial body of the medical organization. To be effective these authorities must be included in either the constitution or the bylaws of the constituent association.

At the same time, the authorities granted a grievance committee must be subject to definite limitations. Discipline is not a proper function of a grievance committee under any circumstance. Where a grievance committee finds that disciplinary measures are indicated, it should so recommend to the appropriate judicial body of the association.

Operating Procedures: It is desirable that grievances should be heard and adjudicated at the local level. However, examination proves that there are instances when constituent associations find it necessary to have their state grievance committees investigate and adjudicate complaints originating in component societies that are too small, unwilling, or otherwise unable to undertake this function. Each constituent association should measure the capacity of its component societies to maintain grievance committees. Such capacity would include consideration of the size of the components, geographical distribution of their members, and the willingness of these members to undertake this task.

In many states complaints are first received in the office of the constituent association. Some constituent medical associations will find it desirable to refer the great majority of complaints to the component societies with jurisdiction. Where a constituent association refers such cases to a component society or delegates this entire function to a component society, the state grievance committee should become an appeal body for that case or that society.

In either of the above methods, the handling of all complaints should include prompt acknowledgment, immediate investigation, impartial hearings and decisions, and prompt announcement of the decisions to those concerned.

Current practices of the constituent associations regarding the receipt of complaints are far from uniform. They vary from a requirement for sworn complaints to acceptance of the most casual of verbal utterances. They vary further since some associations place limitations upon the sources of complaints. It is recommended that there be no limitation upon sources of complaints and that grievance committees be empowered and willing to consider a complaint from any sincere source, public or private, professional or lay. It is distinctly preferable for complaints to be submitted in writing. Where for any sound reason this is impracticable, a verbal complaint should be received if supported by agreement to present it in person before the committee.

In addition to investigation of submitted complaints, the grievance committee should be empowered and willing to initiate investigations on its own motion whenever matters justifying grievance committee action come to its attention.

Privileges of Complainant and Complainee: Impartial and expeditious adjudication of grievances contemplates the guarantee of specific privileges equally to the complainant and the complainee. Among these privileges are the following opportunities: (1) to appear in person before the committee; (2) to present witnesses or evidence in substantiation of the complaint or the reply; (3) to have prompt notification of the decision of the committee; and (4) to appeal the decision to the appropriate superior body.

It should be understood that the physician summoned before a grievance committee is not on trial.

In all these proceedings it should be constantly borne in mind that, as has been indicated elsewhere in this report, a grievance committee's primary functions are to investigate, mediate, arbitrate, and, if necessary, to recommend disciplinary action, but the grievance committee is never to act as a trial body or to effect discipline.

Meetings, Records, and Reports: Each constituent association should determine for itself the frequency of meetings to be held by its grievance committee. Similarly, each association should determine who, if anyone, may attend meetings of its grievance committee in addition to the members of that committee and the complainant or complainee then being heard. Methods of procedure, including these and other points which will necessarily vary from state to state, should be formally established.

In each matter considered the grievance committee should preserve a record including the names of the complainant and complainee, the general nature of the complaint, and the committee's decision. The routine preservation of additional files or records normally should not be necessary. However, if there should be doubt as to the advisability of retaining records in any specific case, the advice of legal counsel should be sought. These records should not go beyond the membership of the committee except upon appeal or in those instances where the committee finds it necessary to refer the matter to a higher body. When referring a case to a judicial body of the association, however, all records of the grievance committee pertaining to that particular case should be transmitted to the judicial body.

Reports without identification of any individuals should be made regularly to the governing body of the constituent association so that it will know the nature, extent, and disposition of complaints coming before the committee.

Publicity: The establishment of grievance committees is a service of medical organization to the public, but this service cannot succeed unless the public knows of its existence and understands how to use it. Therefore, the availability and the method of operation of these committees should be continuously publicized through legitimate channels of lay communication. Concurrently, the profession must be kept informed of the committee's work by utilizing all professional mediums, such as medical journals, newsletters, secretary's letters, and president's pages.

Conclusion: The purpose of the above guides is to promote general uniformity of organization and function of grievance committees and better understanding of their purposes without interfering with the inherent autonomy of constituent medical associations. Constituent associations are therefore urged to implement these guides without delay.

It is recognized that many variables, including the laws of the several states, may influence the operations or the procedures followed by state grievance committees organized within the framework of these guides. Constituent associations should have no reluctance in seeking the advice of legal counsel whenever questions arise concerning the application of state laws to these guides. They should also feel free to call upon the Council on Medical Service and the Public Relations Department of the American Medical Association. The American Medical Association possesses a wealth of information concerning the experience of state associations and county societies as precedents for these proposals.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Frank H. Krusen, Chairman, Section on Physical Medicine, presented the following report, which was adopted:

Supplementary Report L on Report of Committee to Recommend Guides for Grievance or Mediation Committees: Your reference committee desires especially to commend this Committee on Grievance Committees consisting of Drs. John P. Culpepper Jr., Chairman, Frank D. Costenbader, Keith Frankhauser, Cleon A. Nafe, and George A. Unfug and their able assistants Messrs. Rowland B. Kennedy, Harvey T. Sethman, and John E. Farrell for their superb approach to this problem. Your reference committee is keenly aware of the extensive amount of work done by this Committee and desires especially to commend the manner in which this study was undertaken, which may well serve as a model for similar committees. The committee conducted a series of conferences at the "grass-roots level," which aided materially in clarifying many difficult problems. The committee also made extensive use of the services of the Council on Medical Service, of the Law Department, and of other qualified personnel at Association headquarters.

Your reference committee desires to support the recommendation that a brochure be published promptly which will outline the recommendations regarding the activities of grievance committees and that this brochure be given wide distribution. It recommends also that there be an appendix to this brochure in which additional, practical suggestions shall be included.

Your committee desires also to support the contention that there should be no equivocation concerning the naming of such committees and recommends that a uniform policy be adopted in which they are called frankly "Grievance Committees."

Finally, your reference committee recommends that because of the many variables, including the laws of the several states, which may influence the operations or procedures followed by state grievance committees, legal counsel shall be sought at the local level within the states. Your committee recommends the adoption of this supplementary report of the Board of Trustees.

M. SOCIAL SECURITY AMENDMENTS OF 1955

Supplementary report M was referred to the Reference Committee on Legislation and Public Relations.

This informational report by the Board of Trustees to the House of Delegates concerns a legislative problem which the Board considers to be the most serious faced by the medical profession in many years. The problem became acute last summer after the Annual Meeting in Atlantic City. It involves a bill introduced too late in the first session of the 84th Congress for the House of Delegates to act on it last June. The bill in question is H. R. 7225, known as the Social Security Amendments of 1955. This legislation first was rushed through the House Ways and Means Committee, meeting in brief executive session, without public hearings. Then it was passed by the House of Representatives on July 18 by a roll call vote of 372 to 31 under a procedure suspending the rules, barring amendments, limiting debate to 40 minutes and requiring a two-thirds vote for approval. This precipitate action was taken despite the protests of numerous Congressmen who demanded open hearings and careful consideration of the bill. Fortunately, the Senate Finance Committee refused to be stampeded into hasty action on a bill of such major importance. The Senate Finance Committee, after noting the many serious questions raised before the House Committee by Mrs. Hobby, then Secretary of the Department of Health, Education, and Welfare, and in response to appeals from many national organizations including the American Medical Association, decided to postpone action until the second session of the 84th Congress, at which time extensive public hearings will be held.

H. R. 7225 would, among other things, lower the Social Security retirement age for women from 65 to 62; expand compulsory Social Security coverage to all self-employed professional groups except physicians, and raise Social Security taxes over and above the increases already scheduled for the next twenty years. These provisions in themselves pose a variety of questions which call for careful study of their ultimate effects on the scope, philosophy, and financial stability of our Social Security system.

From the standpoint of the medical profession, however, the most controversial parts of the bill are the sections which would extend OASI survivor's benefits for permanently and totally disabled children beyond the age of 18 and make permanently and totally disabled persons eligible to receive their Social Security retirement benefits at age 50 instead of 65. These sections are of particular concern because they would directly affect physicians and the practice of medicine. Under the provisions of this bill, physicians—both in determining total and permanent disability and in providing the rehabilitation services required by the legislation before the cash benefit is paid—presumably would be under federal regulation and would be paid for their medical services, at least in part, out of federal funds. By providing a disability benefit as a right through the OASI system this legislation would subject physicians to government regulations in making disability determinations and rendering rehabilitation services. Furthermore, constant pressures from government, administrators, and patients seeking disability certifications would cause increasing harrassment of the medical profession.

This bill clearly is another step in the extension of government control over the medical profession. More important, it raises grave questions relating to the welfare of our patients. Its threat to the profession is only significant if it conflicts with our ability to discharge our obligations to those we serve. It would classify and certify as hopeless many of those to whom adjustment to a new way of life offers the only hope of recovery and rehabilitation. In the guise of aiding those disabled, it would hamper their return to useful life. The emphasis on the cash benefit would hinder rather than promote rehabilitation of the disabled. Thus, the most serious question raised by H. R. 7225 concerns this long range effect on the future of medical practice. Your Board of Trustees strongly suspects and fears that this proposal, if enacted, would prove to be just another piece in the pattern of social planning leading inevitably to permanent disability benefits at any age, cash benefits for the temporarily disabled, direct federal payments for hospital and medical costs, and then, ultimately, a full-fledged system of tax-paid medical care.

When this legislative problem arose suddenly last summer, the Board of Trustees faced a difficult decision in determining the Association's approach toward H. R. 7225. The Board was fully aware of the questions and dangers just outlined in this report, for those same points have been the basis of previous policy positions taken by the House of Delegates with respect to federal programs for permanent and total disability benefits. Five years ago, following the introduction of H. R. 6000 in 1949, the House of Delegates adopted a policy opposing such a program, and the Association presented its views in Congressional hearings. Last year the Association vigorously opposed the "waiver of premium" section of the 1954 Social Security Amendments, arguing that it would be the opening wedge for a federal system of cash benefits to the permanently and totally disabled. Now, only one year later, our warning has been confirmed, and the bill establishing such a system has already passed the United States House of Representatives.

While fully cognizant of past actions by the House of Delegates and the reasons for them, the Board of Trustees nevertheless had to consider a variety of other factors, including possible differences of viewpoint inside the medical profession, the climate of public opinion, the political situation, and the public relations aspects of the problem. In the opinion of the Board, the American Medical Association can reasonably support the following program:

1. The social security issue, once and for all, should be taken out of politics. It is much too complex a problem with too many serious implications for the future of this country to continue to be considered on the basis of political expediency every two years at election time.

2. There should be an objective, thorough study of social security in all its present and future aspects, medical and otherwise. The American Medical Association will do everything in its power to promote the idea of such a study and to cooperate by conducting more extensive research on disability, rehabilitation, and medical care.

3. The facts developed by such a study should be used as the basis for a sound national decision on this vital issue. Only by getting a clear picture of ultimate liabilities and costs—economic, social, and political—can the American people make an intelligent decision on further expansion of the Social Security system.

In addition to that over-all policy approach, the Board also decided that the Association should conduct an educational program within the medical profession to acquaint physicians with the facts, policies, and new developments relative to this whole issue.

The foregoing decisions made by the Board last summer were fully supported by public relations counsel engaged to advise the Association, not only on this particular legislative issue but on all phases of its public relations program.

Fortunately, a growing number of organizations and individuals are becoming concerned over the continuous politically inspired expansion of the Social Security system. Like the American Medical Association, they see that the system now has reached the point where any further changes may have a profound influence on the nation's economic, social, and political future. They agree that the time has come to ask what social security should accomplish and where it should stop. Many such groups and individuals, sufficiently aroused nationwide, may bring about the sober study needed to promote a stable and sound system.

This House should realize that notwithstanding all of the efforts we and many others have put forth, should the Administration decide to support this proposal, our task will become infinitely greater.

In line with our policy to carry on an educational program within the profession, on Dec. 5 a personal letter from Dr. Elmer Hess, President of the American Medical Association, is being sent to every member of the Association. A pamphlet entitled a "Clinical Analysis of H. R. 7225" dealing with the Social Security Amendments of 1955 will accompany Dr. Hess' letter.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

The report of the reference committee on supplementary report M will be found following supplementary report B on page 1650 of this issue of THE JOURNAL.

N. PROFESSIONAL LIABILITY

Supplementary report N was referred to the Reference Committee on Insurance and Medical Service.

Both the Council on Medical Service and the Law Department have submitted at this meeting full reports of their studies of professional liability insurance and claims prevention programs. These are submitted by the Board to the House of Delegates as status reports on what has been accomplished to date and what is expected to be accomplished in the future. In the report of the Law Department three exhibits are mentioned which are not included because of their length, but their content is clearly explained in the text.

REPORT FROM COUNCIL ON MEDICAL SERVICE

As the Board of Trustees indicated to the House during the Atlantic City session, the Council on Medical Service recommended in its June 3, 1955, progress report "that the Board make a comprehensive report to the House of Delegates at the 1955 Clinical Session." In keeping with that recommendation and to assist the Board if it concurs, the Council submits this report which summarizes its three previous reports and adds new data compiled since June. The Council understands that a separate report is being made by the Law Department with respect to its surveys in compiling current data with respect to claim prevention and claim service programs of constituent associations as well as other activities.

Specialized Insurance and Limited Market: Although over 250 insurance companies are legally qualified to write professional liability insurance in those areas in which they are licensed, relatively few of them express any active interest in doing so. Some of them prefer to write this business only on an accommodation basis for those physicians who carry other lines of insurance with them. Due to the highly specialized nature of this insurance, many companies may not feel they have adequate claim service facilities in certain areas to justify their assumption of risks in those areas. The ready availability of adequate claim service facilities is deemed necessary to successful underwriting, since claim servicing may have a substantial influence on the ultimate course and final result in any potential claim or suit. In one survey, only about 25 companies indicated they were writing any substantial volume of professional liability insurance. More recently it would appear that the bulk of the exposure countrywide is carried by a considerably lesser number of insurers.

It is the Council's understanding that the majority of this business throughout the country is written on an individual (nongroup) basis. Each applicant is considered on the basis of individual merit. In some jurisdictions constituent associations and component societies have established programs whereby their members may participate in securing this coverage on a group basis. Also, some national medical organizations have made special group arrangements in which their members may participate. Other national organizations are considering the advisability as well as the possibility of establishing special group programs. In at least one instance an attempt to write a special contract for members of a national medical group has been terminated. That effort was discontinued in an orderly manner rather than an outright cancellation of existing contracts. In another case, the members of a medical organization national in scope may participate in a group plan offered by an alien insurer. Some observers are under the impression that such a program may possibly provide less comprehensive protection than is traditional under programs underwritten by domestic companies.

Unique Features: To facilitate an understanding of the time interval between the time a liability policy is issued and the time the experience can be evaluated, three cases are offered. In 1953 a man brought suit for injuries he alleged he received at birth in 1930. He claims he was physically impaired to the extent he could not earn a living and demanded damages in the amount of $175,000. During 1953, an insurance company completed payment on a claim based on medical treatment rendered in 1919. At the end of 1953 another insurance company was financing legal defense for claims originating as far back as 1918, although the company has not underwritten any physician liability risks since 1940. Even though these examples may be somewhat unusual, they do indicate features of professional liability insurance that are perhaps without parallel in any other type of risk underwriting. While other cases could be cited, those just mentioned seem to substantiate the observation of the Defense Board of the Medical Society of the State of New York to the effect ". . . there is no form of insurance more difficult to write or to rate correctly than malpractice . . ."

To illustrate further the time interval, table 1 has been prepared showing the elapsed time after "year of issue" before the cumulative percentage of claim cost for that year is realized. The left hand column indicates the year of issue. The next column shows the percentage of total assumed dollar amount of claims paid during the same policy year; while the ensuing columns show the cumulative percentage of assumed total cost realized at the end of the indicated subsequent years. The terms "total assumed dollar amount" and "assumed total cost" are used because all of the indicated percentages will be invalidated if further claim payments have to be made subsequent to 11 years after date of issue. In other words, these percentages are computed on the assumption that no further claims will have to be paid with respect to contracts effected during the indicated "Policy Issue Year."

The experience reflected above was developed after reviewing the data of one insurance company which has had considerable experience in this field on an extensive geographical basis.

TABLE 1.—*Percentage of Assumed Total Claims Paid During and at End of Each Subsequent Year*

Policy Issue Year	Current	Subsequent Year										
		1	2	3	4	5	6	7	8	9	10	11 (Assumed)
1920	1.7%	13.1%	41.4%	64.1%	76.8%	86.6%	91.0%	91.0%	91.0%	98.6%	98.6%	100.00%
1930	1.7	14.6	33.8	48.8	68.9	86.5	96.5	97.5	98.7	98.8	99.1	100.00
1940	5.8	29.9	63.7	75.1	83.4	85.2	91.7	96.3	97.6	99.2	99.2	100.00

While the above table relates to percentages of assumed total dollar amounts, a somewhat similar indication of the time interval problem is disclosed by the following table.

Table 2 shows the number of years after policy issue year before claims or suits are reported.

TABLE 2.—*Time Interval After Policy Issue Before Suits or Claims Are Reported*

Years After Issue	No. of Suits and Claims Reported	Percentage of Total	Accumulated Percentage
1	910	21.44	21.44
2	1,922	45.28	66.72
3	922	21.72	88.44
4	328	7.73	96.17
5	70	1.65	97.82
6	32	0.75	98.57
7	35	0.82	99.39
8	9	0.22	99.61
9	8	0.19	99.80
10	3	0.07	99.87
11	3	0.07	99.84
12	0	.....	.....
13	0	.....	.....
14	0	.....	.....
15	1	0.03	99.97
16	1	0.03	100.00

In reviewing the above, it should be remembered that the table shows only the time elapsed before claims or suits are reported. It does not reflect the additional time which may be required to settle the claims or suits. Information in table 2 was compiled by the Malpractice Insurance and Defensè Board of the Medical Society of the State of New York. It represented a review of more than 170,000 policies issued over a 16 year period.

Losses in Excess of Basic Limits: In its June report to the House of Delegates, the Board summarized the Council's initial survey of the extent to which insurance companies have been called upon to pay losses in excess of basic limits (usually $5,000 per claim) during recent years. That tabulation of such awards subsequent to 1950 indicated individual claims or awards ranging from slightly less than $6,000 up to in excess of $67,000. The total then reported amounted to more than $3,407,000. Data received since that time does not alter the range of losses significantly; but the total is now in excess of $4,500,000. The June report to the House indicated that the figures pertained to 27 states and involved some 254 separate claims or awards and, on a per claim basis, amounted to an average of over $13,000. More recent information applies to 35 states involving 347 separate claims or awards with the average amount per claim remaining in excess of $13,000.

Additional Premium Charges for Partnerships: During the 1953 Annual Meeting Dr. Wendell C. Stover, Indiana, introduced the following resolution, which was adopted but has not as yet been reported on to the House:

> *Resolved*, That the Indiana State Medical Association recommends and suggests that this method of ascertaining premium rates for insurance on medical partnerships be brought to the attention of the American Medical Association House of Delegates, and that the delegates from Indiana to the House of Delegates be, and hereby are, directed to present this resolution to the next meeting of the House of Delegates of the American Medical Association; and urge that the Association instruct its committee studying malpractice insurance to take appropriate action to eliminate this element of discrimination in medical malpractice insurance policies.

With respect to the above resolution, the printed report of the Council on Medical Service for the 1953 Clinical Meeting contained the following:

> The resolution concerning the practice of charging extra premiums for partnerships has been included in the scope of the studies. At such time as the Council is in a position to make a more definitive report to the Board it will include this aspect in order to minimize the number of reports addressed to the House concerning the same general subject.

The Indiana resolution alleges a discriminatory practice with respect to those companies that make extra premium charges for liability insurance when physicians practice on a partnership basis. The Council is advised that the extra charge, where made, with respect to partnerships is done on the basis of the added legal liability. From a legal as well as financial standpoint, any member of a partnership is responsible not only for his own acts but for the individual and several acts of all other partners as well. Rather than risk an erroneous interpretation of the position of the National Bureau of Casualty Underwriters, a memorandum of the bureau is quoted:

> The additional charge for partnership liability coverage reflects the fact that at law each partner, in addition to being responsible individually for his own personal acts and those of his employees, is responsible individually for the conduct of all other partners and partnership employees. An injured person, therefore, may elect to sue the partnership, one or more of its partners, or single out a partner who had no personal participation in the medical or surgical services rendered.
>
> This legal situation is of particular significance in the medical professional liability lines affected because the coverage applies to injuries occurring during the policy period regardless of when they are discovered. Thus, the partnership or any partner thereof continues to be responsible for malpractice of a deceased partner. For other general liability lines, coverage applies only with respect to accidents which occur during the policy period. In other words, for all practical purposes, coverage ends at policy expiration or shortly thereafter for all general liability insurance except for the medical professional liability lines. This means that the coverage under the latter for a member of a partnership is broader than under general liability insurance.
>
> The rates for physicians, surgeons, and dentists, and for other medical professional individuals for which the partnership liability charge applies, are per person rates. These rates measure only the individual responsibility of the physicians, etc., for their personal acts. They do not reflect the additional responsibility he takes on as a partner and which comes about through operation of law. In other general liability lines, the rates, in effect, are rates for the business enterprise for liability arising out of the business operations whether it is individually owned, partnership or corporation owned. In the medical professional liability lines, liability arises out of personal services, services to the body. The injured person thinks in terms of individuals when he is injured because of real or alleged malpractice.

> Partnership risks, and when this term is used, we mean not only the risk consisting of two or three individuals but more particularly the clinic risk, have proven to be target risks in the practical experience of our companies. Whether this is attributable to the emotional agitation of a patient induced by the physical and mental examinations he may undergo at the hands of all doctors and employees comprising the partnership, or real or fancied wrongs amplified by the inability of the patient to say who in particular is responsible for such wrong, we do not know. We only know that from what limited experience is available partnership risks have proven to be worse risks than individual risks and that we should be unwarranted in imposing this increased exposure on all physicians, etc., in determining per person rates, most of whom may not be operating as partnerships.
>
> In return for the additional premium charge made for partnership liability, which additional premium charge we feel is justified because of the reasons mentioned, the Bureau program gives another set of limits. Thus, in a partnership risk involving four physicians all of whom are insured in the same company for individual and partnership liability coverage, five sets of limits could apply in an individual case instead of four which would apply if partnership liability were not separately considered.

Underwriters other than those belonging to the Bureau have varied methods of handling partnership risks. Some of them follow the Bureau practice, while others use different approaches. In practically all cases, however, an added charge seems to be the generally accepted practice. In view of the above, it would appear that there is some justification for an additional charge but studies to date do not disclose just what additional charge may be warranted. Some comfort may be derived from the fact that the additional 50% charge levied originally by the Bureau companies has now been reduced to 33⅓%. Additional attempts will be made to gather more information regarding this and similar practices.

Collateral Coverage: Frequently inquiries are directed to the office of the Council regarding the practice of some insurance companies in asking for other types of insurance when called upon to consider an application for professional liability protection. In checking this, it is understood that it is not the desire to influence the purchase of insurance that is not needed. Rather, it apparently reflects an attitude that these companies question the adequacy of present rates for medical liability insurance. In view of this, many companies request other types of insurance considered more desirable in the hope that the total experience will be more favorable.

A special study of the experience of one insurance company over a 32 year period revealed lack of uniform results as well as lack of success. On a per year basis the experience ranged from a profit of approximately $88,000 to an operating loss of nearly $450,000. Profits were reflected in 13 of the years, while losses were recorded for the other 19. On the basis of generally accepted loss allowable factors, the cumulative profits for the thirteen years amounted to a little more than $375,000 while the cumulative losses amount to over $2,000,000. The net loss for the entire period was only slightly less than $2,000,000. This may be among the factors behind requests for collateral business.

The increased frequency with which the medical profession becomes involved in liability suits or claims is complicated further by ever-increasing awards that are being granted by juries. Increased jury awards also have an effect on claims settled short of litigation. In New York the Malpractice Insurance and Defense Board of the medical society reported recently: ". . . During the past few years the average cost of disposal has increased over $500 per case, with corresponding increase in the reserves for those outstanding and those still to be reported. . . ." The 1954 report goes on to state ". . . Since there is not the slightest indication of any diminution in the rate of incidence or cost of disposal, we must frankly face the question as to what our situation will be five years or even one year from now."

General: Apparently the word "malpractice" does not have the same significance it had at one time. Seemingly an aggrieved patient or former patient no longer is required to prove malpractice in order to sustain a monetary award. A review of some cases might lend support to the observation that an accused physician now has the burden of proof that there was no malpractice. Several factors have a bearing but it is most difficult to assess their relative significance. Since awards and judgments are now made on the basis of liability, legally imposed or assumed, perhaps the term professional liability might have a less adverse implication than the term "malpractice" used so widely in the past.

The Council intends to continue its interest in these problems and will further its efforts toward their ultimate solution. Moreover, the Council plans to further its cooperation with the Law Department and other groups including staff liaison with insurance and medical organizations.

Conclusion: It is the hope of the Council that this summary, together with the report from the Law Department, will facilitate a comprehensive report to the House at this session. The Council is mindful of the interest of the profession in this important field as evidenced by the resolutions introduced in 1952 and subsequently as well as the following recommendation contained in the report of the Reference Committee on Insurance and Medical Service at the 1954 Clinical Meeting in Miami.

> Due to the apparent emergency aspect of the problem, the Board of Trustees is urged to report to the membership as soon as possible, through its component societies, on the progress of this urgent study.

The reference committee may have intended that any report to the membership should be channeled through the constituent associations and their component societies. From its efforts and knowledge to date, the Council is convinced that there are no ready answers to these problems at this time and therefore as yet has no definite program. There continues, however, the obligation to inform the profession with respect to the problems as well as the unique features of this type of underwriting so as to forestall either ill-advised or unwarranted action by the membership. To these ends, the Council offers its continuing services.

REPORT FROM LAW DEPARTMENT ON STUDY OF PROFESSIONAL LIABILITY INSURANCE AND CLAIMS PREVENTION PROGRAMS

Numerous articles have been written and a number of studies have been made concerning professional liability. Generally these articles and studies are neither accurate nor complete, but state impressions and opinions which may or may not have any actual basis in fact. The Law Department has not been able to locate and to its knowledge there does not exist a current comprehensive, factual or statistical study of professional liability claims and cases.

The Law Department, with the cooperation of other Councils and Committees of the Association, is engaged in a survey which it hopes to conduct in an objective, judicious manner with the view of formulating a comprehensive report on the subject of professional liability as it exists in the United States plus affirmative suggestions for reducing such claims.

Status of Survey: Since submitting its initial and preliminary report on this subject dated May 26, 1955, the Law Department has continued to work in cooperation with the Council on Medical Service and the Committee on Professional Liability of the Committee on Medicolegal Problems. In the six month period covered by this report the Department has been engaged in the following major activities in this field:

(1) An analysis was made of pertinent state statutes dealing with insurance rates and regulations. This information, for the most part, was obtained from answers to a questionnaire prepared jointly with the Council on Medical Service, which was sent to each State Insurance Commissioner.

(2) A questionnaire was prepared and distributed to national medical societies inquiring as to the types of coverage afforded to their members and their experience, if any, with group professional liability insurance programs.

(3) An exhaustive questionnaire was prepared, pre-tested and distributed to the 48 states and the District of Columbia medical societies. The three part questionnaire is designed to elicit information concerning (*a*) insurance carriers and the amounts and types of professional liability insurance coverage available, by state; (*b*) experience, if any, or views concerning group coverage; (*c*) the incidence, the most common causes, and the results of professional liability claims; (*d*) the existence, types, methods of operations, and success of claims prevention programs; and (*e*) statistical data relative to the number and disposition of claims and suits, professional liability insurance experience, and rate changes during the past ten years.

(4) Information received through the questionnaire referred to in (3) above was supplemented through personal visits by members of the staff of the Law Department to the medical societies of California, New York, Pennsylvania, Oregon, and Utah.

State Insurance Laws and Regulations: As indicated above the questionnaire concerning state statutes and regulations dealing with professional liability insurance was sent to every State Insurance Commissioner. In general, inquiry was made concerning the type and extent of authority vested in the Commissioner to control or regulate professional liability insurance rates, the person or agency administering the authority, if any, and the citations to the statutes or regulations. For the most part, statutes regulating these rates are found in the sections of the insurance law relating to the regulation of casualty or other types of insurance except fire or marine insurance.

Most of the state statutes provide that (*a*) an insurance carrier must file with the State Insurance Commissioner every manual of classifications, rules, and rates, every rating plan and every modification of any of the foregoing which it proposes to use: (*b*) the carrier must supply any substantiating material requested; (*c*) the Commissioner must review this material as soon as reasonably possible to determine whether it meets the requirements of the statute; and (*d*) the filing is deemed to have met the requirements of the statute unless expressly disapproved by the commissioner within a specified period. A few statutes require that the rates be approved in writing by the commissioner before they become effective. Two states, Montana and Washington, do not exercise any control over professional liability insurance rates.

Information Received from National Medical Societies: The questionnaire inquiring as to the type of professional liability insurance coverage available to the membership of eleven national medical societies was completed and returned by each association contacted. Four indicated that they are currently either offering group coverage or indorsing a particular policy for their membership.

Information Received from State Medical Societies: The questionnaire described in (3) above was sent to the 48 states and the District of Columbia medical societies on Sept. 6, 1955. Follow-up letters were sent to the societies that had not replied on Oct. 17, 1955. Unfortunately, this phase of the study is incomplete inasmuch as replies have only been received to date from 30 states. Another follow-up letter will be sent this month in a further effort to obtain information from those states which have not responded to the two earlier inquiries. Until more complete information is received it will be necessary to generalize concerning the types and amounts of insurance coverage available, the most prevalent problems in the field, and the status of claims prevention programs. Any statistical information concerning insurance rates, the incidents of claims and suits, and the disposition of such cases will also be reserved until the final report.

Of the 30 states replying, 6, California, Georgia, New York, Oregon, Rhode Island, and Washington, indicated that they offer group professional liability insurance or have at some time sponsored or endorsed such insurance on a state or county basis. However, 18 states—Arizona, California, Colorado, Connecticut, Georgia, Kansas, Mississippi, Missouri, Montana, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Virginia, and Washington—have committees on a state or county basis that review professional liability claims brought against members.

One of the questions in the questionnaire deals with the most common causes of liability claims. The following are the causes and aggravating circumstances most frequently listed thus far: (*a*) x-ray burns; (*b*) foreign body left in patient following surgery; (*c*) imperfect result following orthopedic surgery; (*d*) failure to obtain consent prior to surgery; (*e*) inaccurate prescription of drugs or improper diagnosis; (*f*) criticism of one physician by another; (*g*) excessive fees; and (*h*) poor physician-patient relationship. It is interesting to note that one state volunteered the information that at least 90% of their professional liability claims had some justification, whereas another state expressed the belief that only 30% of the claims had merit.

The second question requested information as to what effect a professional liability claim had on the reputation and practice of the physician involved. The overwhelming opinion expressed in response to this question was that the effect was slight, if any. Some of the states felt that a physician's reputation is adversely affected in small communities where liability claims receive a great deal of newspaper publicity.

All of the states submitting replies stated that professional liability insurance was available and that it was not difficult for physicians to obtain. A total of 45 companies, foreign and domestic, were listed as providing some type of professional liability coverage. A few states noted that it was difficult for a physician who had had a malpractice experience to obtain insurance. Two states indicated that coverage was unavailable for brief periods.

Information was also requested as to the limits of insurance coverage carried by general practitioners, surgeons, and other specialists. The answers to this question varied from state to state as well as within a state among physicians in these categories. Eight states reported that all physicians carried substantially the same limits of coverage. Four states did not know what limits their physicians had, and two others indicated that surgeons and specialists carried substantially higher limits than general practitioners.

As stated earlier, 18 states indicated that they have committees to review professional liability claims. In general, these committees review the claims which are brought to their attention, determine to the best of their ability whether the defendant physician has been negligent or not, and advise the underwriters as to whether, in their opinion, the claim should be settled or defended. Some committees or medical societies in addition provide expert medical testimony for the defendant physician. One county society indicated that on its own initiative it provides a medical expert witness, in certain cases, for the patient.

Only a few states reported that they had claims prevention programs. In general, they consisted of lectures given to physicians prior to their admission to the medical society and periodically thereafter to the entire membership of the society. The only other educational activities in this field consist of the preparation and distribution of pertinent articles and other literature which are printed in the state and county medical journals.

Visits to State Medical Societies: At the suggestion of Dr. Louis J. Regan, Chairman of the Committee on Professional Liability, and in an effort to obtain additional information, members of the staff of the Law Department have visited five states and several counties having particular information concerning group insurance on claims prevention programs. Mr. William J. McAuliffe visited the Los Angeles County Medical Association, the Orange County Medical Society, the Alameda-Contra Costa Counties Medical Society, and the San Francisco Medical Society, all of California, in June, 1955. He visited the Medical Society of the State of Pennsylvania in September, 1955, and the Queens county and the New York state medical societies in October, 1955. Mr. Edwin J. Holman visited the Utah State Medical Association in September, 1955, and Mr. R. G. Van Buskirk visited the Oregon State Medical Society in the same month. The Department is grateful for the cooperation and assistance which was offered by each of the societies visited. It is contemplated that additional visits will be made to those states which indicate on their questionnaires that they have group insurance or an active and effective claims prevention program.

Other Phases of the Program: As part of further investigation into the field of professional liability it is proposed to conduct a number of additional activities including:

(1) Survey of Professional Liability Experiences in Other Countries: The Law Department believes it is important to compare American professional liability problems with those which face the medical profession in other countries. It is therefore proposed that a survey be conducted of the experience in countries such as England, Australia, Canada, Norway, Sweden, France, and Italy. A questionnaire is now being prepared which will be sent to the national medical associations of these countries and to other organizations that are active in this field.

(2) Survey of Practicing Physicians: A questionnaire is being prepared to be sent to a significant number of physicians throughout the United States so that a tabulation and study of their personal and individual experiences and opinions can be obtained. This step is necessary to permit us to go beyond expressions of opinion from medical society personnel and to ascertain the experiences of physicians who may not be active in organized medicine. This questionnaire will be sent to a representative number of physicians in each of the states so that a tabulation on a state and possibly a regional basis can be made.

The replies will be broken down by age groups and into classifications of specialized practice. In each community, a questionnaire will be sent to a representative number of general practitioners, surgeons, radiologists, etc. In this way we should be able to determine with reasonable accuracy the number of claims that have been made against physicians, the number covered by insurance, the extent to which insurance coverage has been inadequate, etc. If the information revealed in this phase of the survey is significant, it may be possible to suggest an intensive claims prevention program as well as a program of safety precautions for physicians and hospitals, planned and organized under the aegis of organized medicine.

(3) Survey of Attorneys: We are also interested in the experiences, opinions, and attitudes of attorneys who participate in professional liability claims—both defense and plaintiffs counsel. It is proposed that a questionnaire be sent to about 300 plaintiffs' and 300 defense attorneys. The recipients will be selected on the basis of their activity in the field of personal injury work. In addition to the questionnaires, we plan to interview personally leading attorneys, who are active in the prosecution and defense of these claims.

From the plaintiffs' attorneys, we are interested in the nature of the claims which they accept for legal representation as well as those, if any, which they decline, and the case histories of typical cases they have settled and the amounts. Is it usually necessary to file suit? Their experiences with the insurance companies—whether they are difficult or easy to deal with. Their experiences with medical society "malpractice" committees. Is it difficult to obtain expert medical testimony in "malpractice" cases? Are the attending physicians cooperative with respect to disclosing medical data regarding previous treatment? Are they reluctant to testify against other physicians in borderline cases? Clear-cut cases? Are lawyers in small communities reluctant to take cases against local doctors? Are these cases usually handled on a contingent fee basis? Are they frequently settled where there is no insurance? Are claims usually made against physicians who have insurance? etc.

We shall also contact the medicolegal committees of state and local bar associations. We believe that we are in a position to secure the cooperation of these men in obtaining frank statements of opinion and information as to their experiences. We do not propose to limit our activities here to one part of the country but to select representative cities and rural areas.

(4) Survey of the Judiciary: We are also interested in obtaining an insight into the thinking of judges who sit in judgment of physicians in malpractice cases. We believe it is essential to know their personal attitude toward the medical profession and their opinion concerning the verdicts awarded in these cases. It has not been decided as yet whether a questionnaire is feasible. However, in any event attempts will be made to interview personally a significant number of judges.

(5) Analysis of State Legislation and Reported Cases: An analysis of state statutes and reported cases should provide valuable information. Admittedly, reported cases for the most part include only those in which important points of law relating to liability are involved. Nevertheless the importance of such cases cannot be underestimated. An analysis of such cases should provide data as to the areas of medical practice in which professional liability claims occur most frequently, the circumstances usually surrounding such claims, the amounts of judgments, etc. This analysis will cover in detail all reported cases of the last 20 years, broken down on a five year basis so that significant trends can be observed. Comparisons, similarities, and differences in state statutes and reported cases will be noted. From this phase of the study it is possible that some recommendations can be formulated for model legislation covering the field of professional liability.

(6) Survey of Comparable Fields of Negligence Actions: Primarily, it has been the practice to consider professional liability as a separate problem of the medical profession. Actually, this represents only a single type of personal injury claims arising from negligence. We believe it would be advisable to study the larger problem. There is reason to believe that the same factors which influence the institution of personal injury claims in other fields of liability also affect the institution and determination of professional liability claims. If this premise is borne out in our investigations, further study of the defensive and preventive measures taken to minimize liability in these other fields of negligence cases seems warranted.

It is recognized that the personal injury lawyer who represents plaintiffs in personal injury claims is the lawyer who will also represent professional liability claimants. The expert medical witnesses who spend much of their professional life in the court room testifying in automobile and public liability cases are the ones who also appear most frequently in professional liability cases. We therefore contemplate a study of automobile claims, public liability, product liability, and tort claims in general for the purpose of studying comparability and differences that may exist with professional liability claims. Our study will deal with the statistics, reported cases, and available literature in the field of tort claims.

(7) Study of Insurance Experience and Rates: With the active cooperation of the Council on Medical Service it will be necessary through personal visits and correspondence with insurance companies writing this type of coverage to obtain in detail and by geographic area their experience for the past 10 years. Specifically we are interested in statistical data relative to the number and disposition of claims and suits, professional liability insurance experience, rate structures, and changes. Also of importance are differences in claims settlement policies, the existence and content of claims prevention programs, as well as the opinions of insurance officials as to future trends and desirable corrective measures. We also hope to have an opportunity to review the changes that have taken place in insurance rates in other fields of liability and the factors that influenced these changes, for the purpose of comparison.

(8) Preparation and Publication of Special Articles: As an integral part of our efforts in the field of professional liability, the Law Department with the Committee on Medicolegal Problems intends to prepare and publish in THE JOURNAL a series of significant articles which will later be coordinated as part of the entire survey. These studies will include monographs on subjects such as the following:

"The Law of Professional Liability" (An outline of the basic law related to malpractice claims with a discussion of leading United States cases).

"The Res Ipsa Loquitur Case" (A discussion of cases in which the court has found the liability is apparent or it "speaks for itself").

"The Rule of Respondeat Superior" (A discussion of the professional liability of physicians resulting from the acts of partners, office associates, and staff personnel).

"The History of Professional Liability Claims in the United States."

"Professional Liability Claims in Other Countries."

"Professional Liability Claims Prevention" (A discussion of the measures that physicians may take to prevent and minimize professional liability claims).

"Put It in Writing, Doctor" (A discussion of when the physician should document the physician-patient relationship by a written agreement or a formal written consent).

"Hazardous Therapy" (A discussion of the use of hazardous therapy such as shock therapy, myelograms, spinal taps, spinal anesthesia, use of experimental drugs, etc.).

"Timely Use of Consultants."

"Safety Engineering in Medical Practice" (Use of sound management procedures and safety measures to prevent medical accidents in the office and the hospital.

"Expressing Opinions as to Former Treatment."

The above are examples of the type of articles which we believe will assist in formulating an effective claims prevention program. It may also be possible with the Public Relations Department to prepare material for general distribution to the public. These pamphlets, of course, would not deal specifically with malpractice but with topics to improve doctor-patient relations.

Conclusion: We realize that the foregoing encompasses an ambitious program. However, we believe that it is necessary if we are to obtain a broad perspective of (*a*) the methods of decreasing as well as the causes or incidence of professional liability claims, and (*b*) the availability, costs, and trends in professional liability insurance. To accomplish its goal, the Law Department will need the continued fine cooperation of the Council on Medical Service and the Committee on Medicolegal Problems, and in addition still greater assistance from the state and county medical societies.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. Lewis A. Alesen, Chairman, California, read the following report, which was adopted:

Supplementary Report N on Professional Liability: A representative of the Law Department appeared before your reference committee and explained that this is in the nature of a progress report outlining studies now under way by that Department. He further emphasized that the department requests the constituent and component societies to collaborate to the fullest possible extent and urges individual physicians to render their good offices in the completion of this study.

This report also directs attention to the fact that, "although over 250 insurance companies are legally qualified to write professional liability insurance in those areas in which they are licensed, relatively few of them express any active interest in doing so. Some of them prefer to write this business only on an accommodation basis for those physicians who carry other lines of insurance with them." This survey of professional liability insurance and claims prevention programs is indeed timely. Your committee commends the Law Department and the Council on Medical Service for the report.

O. Clinical Psychologists

Supplementary report O was referred to the Reference Committee on Hygiene, Public Health, and Industrial Health.

In December, 1952, the House of Delegates approved a recommendation that future proposals for the certification or licensure of psychologists should be carefully studied to determine whether they are in accord with these principles: that psychotherapy is an integral part of the practice of medicine and that clinical psychologists cannot be qualified by their training and experience to function independently as psychotherapists. At the Miami Clinical Meeting in 1954 the House approved a joint statement on relations of medicine and psychology which had been previously approved by the Board of Trustees and the executive bodies of the American Psychiatric Association and the American Psychoanalytic Association.

In view of the fact that psychologists are continuing to obtain the passage of licensure or certification laws in some of the states in spite of state medical association opposition, the Board recommends opposition by the American Medical Association to the licensure of psychologists.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

Dr. L. Howard Schriver, Chairman, Ohio, read the following report, which was adopted.

Supplementary Report O on Clinical Psychologists: Your reference committee approves this recommendation.

P. Resolution on Changes in Legal Status of Epileptic

Supplementary report P was referred to the Reference Committee on Legislation and Public Relations.

Resolution No. 76 (June, 1955) urging the Association to have its "component societies" support legislation relaxing the attitude toward epileptics so far as marriage, eugenic sterilization, motor vehicle licenses, and workmen's compensation laws are concerned was considered by the Council on Mental Health and the Committee on Legislation. There is at the present time sufficient medical evidence that great strides have been made in the treatment of epilepsy and the control of epileptic seizures. However, the Board of Trustees believes that because of the difficulty in formulating legislation and the long established custom of not doing so, it should do no more than affirm the factual portion of the reference committee report, leaving the constituent societies free to act or not as they may decide.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Paul A. Davis, Chairman, Ohio, submitted the following report, which was adopted:

Supplementary Report P on Changes in Legal Status of Epileptics: Your reference committee approves this report.

Q. Resolution on Ophthalmologic-Optometric Relations

Supplementary report Q was referred to the Reference Committee on Miscellaneous Business.

Resolution No. 58 (June, 1955) recommending several actions by the Board and other groups (i. e., among others, discharge of the National Committee on Eye Care, appointment of a permanent committee on eye care, revision of Public Law 734, part 4, Section 341E, clause 10) was referred to the Judicial Council and to the Committee on Legislation for study. These groups are at the present time reviewing the matter and a study of state laws relating to optometry is planned. The Board wishes, therefore, to withhold implementation of the resolution until a complete report is received on the contemplated studies.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Frank H. Krusen, Chairman, Section on Physical Medicine, presented the following report, which was adopted:

Supplementary Report Q on Resolution on Ophthalmologic-Optometric Relations: Your reference committee concurs in the recommendation of the Board that the implementation of this resolution be withheld until complete reports on this subject are received from the Judicial Council and the Committee on Legislation. Your reference committee recommends that this supplementary report of the Board of Trustees be adopted.

R. Committee on General Practice Prior to Specialization

Supplementary report R was referred to the Reference Committee on Medical Education and Hospitals.

The Board of Trustees considered the report of the Committee on General Practice Prior to Specialization, which was accepted by the House of Delegates in June, 1955, and is in agreement with the recommendations contained therein except that the Board recommends a smaller committee of 9 members, instead of 11, to be composed of 2 members of the Board, 2 from the Council on Medical Education and Hospitals, one from the Council on Medical Service, and 4 from the House of Delegates, 2 of whom should be general practitioners. None of the nine members should be deans or full-time professors in medical schools or officers or directors of any specialty board. The appointees will be selected in the next few weeks.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. George M. Fister, Chairman, Utah, read the following report, which was adopted:

Your reference committee has reviewed supplementary report of the Board of Trustees R, entitled "Committee on General Practice Prior to Specialization." Your reference committee notes with interest the development of this committee for the study of general practice prior to specialization.

S. Medical Relations in Workmen's Compensation

Supplementary report S was referred to the Reference Committee on Hygiene, Public Health, and Industrial Health.

The report of the Council on Industrial Health presents a guide for the evaluation and implementation of a program in workmen's compensation for the medical profession. The Board, after carefully considering this report, recommends its adoption by the House of Delegates.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

Dr. L. Howard Schriver, Chairman, Ohio, read the following report, which was adopted:

Supplementary Report S on Medical Relations in Workmen's Compensation: Your reference committee approves this recommendation of the Board of Trustees.

T. Federal Civil Defense Administration Improvised Hospitals

Supplementary report T was referred to the Reference Committee on Medical Military Affairs.

The Council on National Defense of the American Medical Association considered a resolution from the Medical Advisory Committee to the Administrator of the Federal Civil Defense Administration relative to improvised hospital units and recommended endorsement of the use of the 200-bed improvised hospital. Inasmuch as the improvised hospital is recognized as an essential means of augmenting existing medical facilities during and after disaster, including enemy action, and for providing lifesaving medical care, the Board adopted the recommendation of its Council on National Defense that the 200-bed improvised hospital of the FCDA be endorsed by the House of Delegates.

REPORT OF REFERENCE COMMITTEE ON MEDICAL MILITARY AFFAIRS

Dr. Charles H. Richardson Sr., Chairman, Georgia, read the following report, which was adopted:

Your reference committee endorses the 200-bed improvised Civil Defense hospital described in the report of the Council on National Defense and in supplementary report T, as an essential means of augmenting existing medical facilities during and after disaster. It further urges that all assistance be provided by the Federal Civil Defense Administrator to local communities in target areas so that early distribution of improvised Civil Defense hospitals will be made for training purposes.

Your reference committee suggests that the name of the hospital be changed from "200-bed improvised hospital" to 200-bed emergency Civil Defense hospital" as the organization, placement, operation, and supply of the hospital are well defined and there is or should be little improvisation so that the term emergency Civil Defense hospital is appropriate.

U. Resolution on Repeal of Sections 106 and 222 of Public Law 761, 83d Congress

Supplementary report U was referred to the Reference Committee on Legislation and Public Relations.

Resolution No. 5 (June, 1955) requesting the repeal of Sections 106 and 222 of Public Law 761, 83d Congress, and the request of the House for an opinion as to its practical aspects were considered by the Committee on Legislation and the Board of Trustees.

The Board adopted the recommendation of its Committee on Legislation that the Association, in testifying on H. R. 7225, 84th Congress, recommended the repeal of Sections 106 and 222 and the enactment in their stead of a provision for the use of the best 5 or 10 years in the computation of Social Security benefits. The Board believes that this action is consistent with the Association's previous position, will relieve the present threat of extension of the disability sections, and will be more feasible and economical to administer than the present provisions which call for medical determinations of physical and mental disability.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

The report of the reference committee on supplementary report U will be found following supplementary report B on page 1650 of this issue of The Journal.

V. Contribution to American Medical Education Foundation

The Vice Speaker declared that supplementary report V was for information only and needed no referral.

The Board of Trustees at this time wishes to announce that it again has appropriated $100,000 for the support of the medical schools of the nation and will turn over these funds to the American Medical Education Foundation. The Board continues to assume the administrative expenses connected with the solicitation of funds, so that all contributions are forwarded to the medical schools.

W. Annual and Clinical Meetings

Supplementary report W was referred to the Reference Committee on Reports of Board of Trustees and Secretary.

Consideration has been given by the Board of Trustees to the invitation from Chicago for the 1960 Annual Meeting of the Association. Accommodations in Chicago have been found to be adequate for a meeting of the Association.

Invitations for the 1958 Clinical Meeting have been received from Dallas, Texas; Denver; Houston, Texas; Minneapolis; St. Louis; and Washington, D. C. The Board is pleased to announce acceptance of the invitation from Minneapolis as the place for the 1958 Clinical Meeting of the Association.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Homer M. Izumi, Chairman, Hawaii, submitted the following report, which was adopted:

Supplementary Report W, on Annual and Clinical Meetings: Your committee recommends acceptance of the invitation of Chicago for the 1960 Annual Meeting of the Association, and notes the action of the Board in accepting the invitation of Minneapolis for the 1958 Clinical Meeting.

Citation to Dr. Torald Sollmann

Dr. Gunnar Gundersen, Chairman of the Board of Trustees, presented a citation to Dr. Torald Sollmann with the following remarks:

Mr. Speaker, Members of the House of Delegates, and Guests: It is my great privilege at this time to present a citation to a man who is not only one of the most distinguished members of the medical profession, but also one of its most beloved, Dr. Torald Sollmann of Cleveland, Ohio. To give you the complete story of Dr. Sollmann's long and varied career would take many hours. I shall touch on just a few of the highlights.

At the age of 17 he became the youngest person ever to obtain a pharmacist's license in Ohio up to that time. In 1896, when he was 22, he received his M.D. degree from the medical school at Western Reserve University. Two years later he was appointed lecturer in pharmacology, and in 1904 he became a full professor of pharmacology. One of Dr. Sollmann's first accomplishments as a professor was to write the first English language textbook on pharmacology. This 100-page work on laboratory experiments was a modest forerunner of his later 1,000-page "Manual of Pharmacology," which now is in its seventh edition and is regarded as a standard textbook in all medical schools and research organizations. From 1928 to 1944, when he retired after nearly 50 years of active service at Western Reserve University, Dr. Sollmann was Dean of the School of Medicine. Throughout all those years and up to the present time, his name has become practically synonymous with the work of the Council on Pharmacy and Chemistry of the American Medical Association. He personifies the Council's motto, "Non sibi sed medicinae"—"Not for ourselves but for medicine."

Dr. Sollmann, I should like to read this citation to you and our audience:

Citation

"The American Medical Association takes pleasure in presenting this citation to Torald Sollmann, M.D., in recognition of his many years of outstanding service to the medical profession and on behalf of the advancement of medical science.

"A charter member of the Council on Pharmacy and Chemistry for 50 years and chairman of the Council since 1936, Dr. Sollmann has had a distinguished career as physician, teacher, researcher, technical advisor to his government, and author of standard texts in pharmacology. His unselfish devotion and inspiring leadership have been largely responsible for the Council's achievements in encouraging rational therapeutics."

Remarks of Dr. Torald Sollmann

In accepting the citation, Dr. Sollmann made the following remarks:

Thank you very much, gentlemen, for this honor. It has been a privilege which I have greatly appreciated to be able to work on the Council on Pharmacy and Chemistry for the betterment of therapeutics. The honor which you are doing to me is an honor to all of those who have worked with me on the Council. I am, I think, the only surviving member who attended the first meeting of the Council, and, with Dr. Novy, we two represent the members of the original Council. To all those who, during the years, have worked on this project as members of the Council and the staff of the Council, and back of them, you, the delegates and the trustees, who have always enthusiastically supported this work, my profound thanks.

(To be continued)

MEDICAL NEWS

CALIFORNIA

University News.—The College of Medical Evangelists, Los Angeles-Loma Linda, recently dedicated a new $100,000 anatomy amphitheater seating 178 on its Loma Linda campus. At a dedicatory program, Nov. 22, Dr. Otto F. Kampmeier, head of the anatomy department, spoke on the progress of education in the field of anatomy.

Cerebral Palsy Center.—In compliance with a request of the state of California, the College of Medical Evangelists, Loma Linda-Los Angeles, will establish a diagnostic and treatment center for cerebral palsied children at the White Memorial Clinic. The college will cooperate particularly with the State School for Cerebral Palsied Children now operating in Altadena. The budget provides $17,000 for setting up additional service at the White Memorial Clinic under the direction of Drs. Robert F. Chinnock and Joseph E. Maschmeyer.

Course on Hypnosis.—An intensive course in techniques and application of hypnosis (fee $100) will be offered by University of California School of Medicine and University Extension, Los Angeles, Jan. 19-21 (Thursday and Friday sessions, 9 a. m. to 12 noon and 1:30-4:30 p. m.; Saturday session, 9 a. m.-1 p. m.). Requests for information should be made to Dr. Thomas H. Sternberg, assistant dean for postgraduate medical education, University of California Medical Center, Los Angeles 24. The course is open only to graduates of approved medical schools and to psychologists with Ph.D. degrees, with consent of the course chairman, Roy M. Dorcus, Ph.D., professor of psychology in the university's department of psychology and the school of medicine.

Retiring Teachers.—Dr. Phoebus Berman, who will retire Jan. 10, 1956, as medical director of the Los Angeles County Hospital, was a guest of honor at the banquet of the Medical Alumni Association of the University of Southern California School of Medicine, Nov. 4. Dr. Berman is a clinical professor of medicine on the faculty of the school of medicine. Scrolls of honor were awarded the following members of the faculty who are retiring to emeritus status: Dr. Ray A. Carter, emeritus professor of radiology; Dr. Finis G. Cooper, emeritus assistant clinical professor of surgery; Dr. Ezra S. Fish, emeritus professor of pediatrics; Dr. Simon Jesberg, emeritus associate clinical professor of surgery; Dr. E. Eric Larson, emeritus clinical professor of surgery; Dr. Frederick H. Linthicum Sr., emeritus associate clinical professor of surgery; Karl F. Meyer, Ph.D., emeritus lecturer in public health; Dr. W. William Mulvehill, emeritus assistant clinical professor of medicine; and Dr. Gilbert Roy Owen, emeritus associate clinical professor of surgery.

Society News.—At the annual meeting of the California Society of Internal Medicine in Santa Barbara, Oct. 1, the following officers were chosen: Dr. George K. Wever, Stockton, president; Dr. William C. Mumler, Los Angeles, vice-president; and Dr. Claude P. Callaway, San Francisco, secretary-treasurer. The guest speakers were Dr. Samuel Soskin, Los Angeles (Diabetes Mellitus, Theory and Practice); Dr. Helen E. Martin, Los Angeles (Electrolyte Changes in Diabetic Acidosis); Dr. Peter H. Forsham, San Francisco (Theories on the Cause and Correction of the Degenerative Stigmata of Diabetes Mellitus); and Dr. Percival A. Gray Jr., Santa Barbara (Practical Aspects of Training the Diabetes Patients as to Diet). Dr. Soskin acted as moderator for a panel discussion, "What Is the Optimum Level of Control for the Diabetic Patient?" A medical economic forum was held to discuss "The Trend of Health Insurance," with Dr. Robert M. Shelton of Pasadena as moderator. Mr. Ed Clancy, director of public relations of the California Medical Association, was the main speaker.

FLORIDA

Society News.—In October the Orange County Medical Society published the first issue of its quarterly bulletin. Dr. Don C. Robertson, Orlando, president of the society, is editor. The bulletin office is at 1206 Kuhl Ave., Orlando (phone 5-5108).

Personal.—Dr. Hyman J. Roberts, West Palm Beach, recently presented at St. Mary's Hospital, West Palm Beach, a six-week course on electrocardiography and cardiology as a guest lecturer of the section on general practice of the Palm Beach County Medical Society.

Seminar in Ophthalmology and Otolaryngology.—The 10th annual University of Florida Midwinter Seminar in Ophthalmology and Otolaryngology will be held at the Sans Souci Hotel in Miami Beach, Jan. 16-21, 1956. The seminar lecturers on ophthalmology (Monday, Tuesday, and Wednesday) are: Drs. Francis H. Adler, Philadelphia; A. Gerard DeVoe, New York; Michael J. Hogan, San Francisco; C. Wilbur Rucker, Rochester, Minn.; and Albert D. Ruedemann, Detroit. Those lecturing on otolaryngology (Thursday, Friday, and Saturday) are: Drs. Frederick A. Figi, Rochester, Minn.; Lewis F. Morrison, San Francisco; Charles E. Kinney, Cleveland; John R. Lindsay, Chicago; and Bernard J. McMahon, St. Louis.

ILLINOIS

Artery Bank.—On Oct. 11 a central artery bank, supported by the Chicago Heart Association, was opened at the Hektoen Institute for Medical Research, Chicago. Procurement of suitable arterial segments is based on postmortem material of the Cook County Hospital. Sterilization, lyophilization, and storage of blood vessels are accomplished at the bank. Segments can be obtained by those whose training in vascular surgery is known or for whose ability the surgical staff at the requesting hospital can vouch. Surgeons interested in obtaining such segments may obtain information by calling Miss Naomi McElwain at MOnroe 6-0787.

Chicago

Course on Bronchoesophagology.—The University of Illinois College of Medicine will present its next laryngology and bronchoesophagology course March 5-17, 1956, under the direction of Dr. Paul H. Holinger. Interested registrants should write to the Department of Otolaryngology, University of Illinois College of Medicine, 1853 W. Polk St., Chicago 12.

Dr. Gerard Goes to Michigan.—Dr. Ralph W. Gerard, professor of neurophysiology at the University of Illinois College of Medicine, has been appointed professor of neurophysiology at the University of Michigan Medical School, Ann Arbor, where he will be associated with the Mental Health Research Institute. Dr. Gerard has been affiliated with the University College in London, England, and the Kaiser Wilhelm Institute in Berlin, Germany. For 25 years he served on the staff of the University of Chicago.

Multiple Sclerosis Research.—The Multiple Sclerosis Foundation of America has presented $25,000 to Northwestern University Medical School to support research in progress as a team project among five departments at the school. Dr. Lewis J. Pollock, emeritus professor and chairman of the department of neurology and psychiatry, is in charge of the program. The foundation has given $125,000 to Northwestern University in the past five years for studies that might yield information toward finding the cause of the disease or a treatment for it.

Personal.—Dr. Gerhart J. Piers, secretary, Chicago Psychoanalytic Society, has been appointed to succeed Dr. Franz G. Alexander as director of the Institute for Psychoanalysis (664 N. Michigan Ave.) when Dr. Alexander retires in the

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

fall of 1956. Dr. Piers, a native of Vienna, Austria, has been affiliated with the institute since 1942. He formerly served as a staff psychiatrist at Elgin (Ill.) State Hospital, as acting director of the Chicago Community Clinic, and as a member of the staff of the Veteran's Rehabilitation Center.——Dr. Jules H. Masserman, professor of neurology and psychiatry, Northwestern University Medical School, was recently asked by various universities and neuropsychiatric societies to lecture in Brazil, Uruguay, Argentina, Chile, Peru, Costa Rica, and Guatemala. The tour, also sponsored by the World Health Organization, was designed to foster closer scientific liaison with academic, clinical, and research centers in Latin America. Dr. Masserman, author of a new book, "Practice of Dynamic Psychiatry," is president-elect of the American Society of Group Therapy, vice-chairman of the section on psychotherapy of the American Psychiatric Association, president of the Illinois Psychiatric Society, and scientific director of the National Foundation for Psychiatric Research.

University News.—The Chicago Medical School announces the appointment of Dr. Paul B. Szanto as associate professor of pathology, Dr. Harry H. LeVeen as associate professor of surgery, and Dr. Irving C. Sherman as clinical professor of neurology and chief of the division of neurology. The school also announces the following promotions: Dr. David Presman, clinical associate professor of urology; Dr. Samuel R. Rubert, clinical assistant professor of orthopedic surgery; Dr. Howard H. Bass, clinical associate in urology; Dr. Robert D. Crane, clinical associate in surgery; Dr. Louis Richmond, associate in medicine; and Dr. Lester Wishingrad, instructor in pediatrics.——Northwestern University Medical School announces promotion of the following physicians to the rank of associate professor, effective Sept. 1, 1955: Alfred D. Biggs and Meyer A. Perlstein, pediatrics; Samuel M. Bluefarb, dermatology; Craig W. Borden and Frederick W. Fitz, medicine; T. Howard Clarke and John E. Kearns Jr., surgery; Clinton L. Compere, John R. Norcross, and Vernon Clifford Turner, orthopedic surgery; and Albert Milzer, bacteriology.——Dr. Ruth Rhines, formerly associate in medicine, University of Pennsylvania School of Medicine, Philadelphia, has been appointed associate professor of anatomy in the University of Chicago division of biological sciences. Dr. Rhines previously served as instructor in medicine at the University of Illinois College of Medicine and assistant superintendent of the Municipal Contagious Disease Hospital in Chicago.——Dr. H. Waldo Bird Jr., Detroit, former faculty member of the Wayne University College of Medicine, Detroit, has been appointed associate professor of psychiatry at the University of Chicago School of Medicine.

IOWA

Farmers with Heart Ailments.—A pilot project has been initiated under the sponsorship of the American and Iowa heart associations to help farmers in Washington County who suffer from heart ailments. Its objectives will be to determine the physical capacity of farmers who have such difficulties and to help them, through medical and social counseling, to remain active within their physical limitations—either in or outside of agriculture. Dr. Lewis E. January, professor of internal medicine, State University of Iowa College of Medicine, Iowa City, will be the responsible investigator. A liaison committee of the Washington County Medical Society consists of Drs. Guy E. Montgomery, Washington, Jay R. Miller, Wellman, and Dwight G. Sattler, of Kalona. The program will be conducted by a local steering committee, local physicians, and a "clinic team," of which Dr. Montgomery is chairman.

MARYLAND

Services for Crippled Children.—The James Lawrence Kernan Hospital and Industrial School for Crippled Children, Baltimore, has opened a rehabilitation center that will place special emphasis on prosthesis and special bracing problems. Clinics will be held on the second Monday of each month at 2 p. m. under the direction of Dr. Milton J. Wilder, Baltimore.

Dr. Roberts Accepts Chicago Post.—Dr. Dean W. Roberts, Baltimore, since 1952 director of the National Commission on Chronic Illness, has been appointed executive director of the National Society for Crippled Children and Adults (11 S. La-Salle St., Chicago 3) to succeed Mr. Lawrence J. Linck, who has been executive director of the society since 1945. Dr. Roberts is a lecturer in Public Health Administration at Johns Hopkins University, Baltimore.

MASSACHUSETTS

University News.—Dr. William Francis Ketchum, at one time assistant in pediatrics at the Tulane University of Louisiana School of Medicine, New Orleans, has been appointed assistant to the dean of the faculty of medicine at Harvard Medical School, Boston, where he will also serve as an instructor in pediatrics. Dr. Ketchum has been affiliated with Peter Bent Brigham Hospital, the Massachusetts General Hospital, and the Children's Medical Center in Boston and Babies Hospital in New York City.

Industrial Center for Paraplegic Rehabilitation.—An industrial rehabilitation department and neurosurgical service for paraplegics, dedicated to total care of the patient by specialists until he is fully restored to society, has been established at the Haynes Memorial department of the Massachusetts Memorial Hospitals in Boston under the joint sponsorship of the Liberty Mutual Insurance Company, the Massachusetts Memorial Hospitals, and the hospitals' affiliated medical school at Boston University. Funds to rebuild and reequip the east wing of Haynes Memorial Hospital were provided by Liberty Mutual. Dr. Donald Munro, former chief of services of Boston City Hospital and a consultant to the insurance company since 1949, is chief of service, assisted by Dr. Warren R. Sisson Jr. According to Dr. Chester S. Keefer, dean of the medical school, the center will be a teaching clinic for medical students and marks a new phase of medical education. The new unit provides accommodations for some 26 patients having paraplegia, an operating room equipped for neurosurgical procedures, facilities for x-ray and laboratory analysis and diagnosis, a lecture hall for teaching purposes, and physical therapy, ambulation, and recreational rooms. Rehabilitation nurse counselors, ambulation teachers, and physiotherapists are to be provided by the Liberty Mutual Rehabilitation Center in Boston. The services of the new department will be available to those injured in industrial accidents or patients with neurological disorders who are referred by physicians or from other clinics or insurance carriers.

MISSOURI

Dr. Mendeloff Goes to Baltimore.—Dr. Albert I. Mendeloff, associate professor of medicine and preventive medicine, Washington University School of Medicine, St. Louis, has been appointed full-time clinical chief of staff in medicine at the Sinai Hospital of Baltimore, associate professor in medicine at the Johns Hopkins University School of Medicine, and physician on the staff of the Johns Hopkins Hospital in Baltimore. Dr. Mendeloff, who has been associated with the Washington University School of Medicine since 1949, previously was affiliated with the Harvard Medical School, the Boston University School of Medicine, and Peter Bent Brigham Hospital, Boston.

NEBRASKA

University News.—Dr. Dwight M. Frost has joined the University of Nebraska College of Medicine staff as director of the new department of physical medicine and rehabilitation. He comes to the Omaha campus from the Institute of Physical Medicine and Rehabilitation at New York University-Bellevue Medical Center.

NEW JERSEY

Hospital News.—Half a million dollars was pledged recently by Johnson & Johnson and affiliated companies, manufacturers of surgical dressings and allied products, to help meet the hospital facilities capital expansion needs of the two New Brunswick hospitals, St. Peter's General and Middlesex General, which will share equally in the proceeds of the combined fund-raising campaign. The goal locally is to raise 3 million dollars, which would be augmented by an anticipated federal grant of 2 million dollars.

Memorial for Dr. Ward.—Dr. Raymond T. Potter, East Orange, was recently named chairman of the healing arts division for the $80,000 building fund campaign of the Florence Crittenton League of Newark. The campaign to finance improvements to the league's Newark home will be in the nature of a memorial to the late Dr. William R. Ward, who 54 years ago was responsible for founding New Jersey's first home for expectant unwed mothers, which later became affiliated with the Florence Crittenton League, a national society. Dr. Ward served as president of the home until his death earlier this year. On successful conclusion of the campaign, the league's Newark home at 2 Ogden St. will be renamed in honor of Dr. Ward.

NEW YORK

Professor of Preventive Medicine.—Dr. Archibald S. Dean of the Buffalo Regional Office, New York State Department of Health, has been appointed head of the department of preventive medicine and public health of the University of Buffalo School of Medicine.

Oldest Medical Radio Program.—At the annual meeting of the Monroe County Medical Society, Dec. 13, in the Rochester Academy of Medicine, a plaque commemorating the broadcasting of America's oldest continuous medical radio program was awarded to radio station WHAM, Rochester (NBC). The series was opened May 27, 1930, by Dr. Walter A. Calihan, Rochester, then president of the society. The plaque, which bears the inscription, "To WHAM from the Medical Society of the County of Monroe for twenty-five years of public service in broadcasting weekly talks 'Speaking of Health' for the good of all," was presented by Dr. Gordon M. Hemmett, Rochester, president of the county medical society; Dr. Frederick W. Bush, Rochester, chairman of the public relations committee; and Dr. Jean D. Watkeys, Rochester, chairman of the health education committee and current producer of the program, "Speaking of Health," heard on Saturdays at 1:15 p. m.

New York City

Lectures for the Laity.—In its 21st series of Lectures to the Laity, the New York Academy of Medicine, 2 E. 103rd St., will present "Cultural Mentalities and Medical Science" by Filmer S. C. Northrop, Ph.D., Sterling Professor of Philosophy and Law, Yale University, New Haven, Conn., at 8:30 p. m., Jan. 4, 1956.

Appointed Professor of Public Health.—Dr. Helen M. Wallace, who has been affiliated since 1943 with the New York City Department of Health, has been appointed director, department of public health, preventive medicine, and industrial hygiene, at New York Medical College, Flower and Fifth Avenue Hospitals. Dr. Wallace has held teaching appointments at Long Island College of Medicine (now State University of New York College of Medicine at New York City, Brooklyn), Teachers College, and the School of Public Health of Harvard University, Boston.

Scholarships in Reproduction.—The State University of New York College of Medicine in Brooklyn has received a grant of $24,000 from the Josiah Macy Jr. Foundation to support student research scholarships in the field of reproduction. The money will be divided into five awards of $4,800 to provide eight Josiah Macy Jr. Foundation Scholarships each year. Student scholarship winners will receive $500 each. The balance will be used for laboratory expenses. Scholarship winners will be selected by a faculty committee representing members of both the basic and the clinical sciences. Dr. Louis M. Hellman, head of the department of obstetrics and gynecology, is chairman of the committee.

Course on Radioactive Medicine.—The graduate division of New York University College of Engineering announces that next spring it will offer the first university course on the use of scintillation counters as research tools. The course, intended principally for medical researchers using radioactive tracers, will be conducted by Richard Stephenson, Ph.D., associate professor at New York University, who was formerly with the physical instrumentation group at the Atomic Energy Commission's Oak Ridge (Tenn.) National Laboratory. A scintillation laboratory has been established at the college of engineering. Information can be obtained from the Graduate Office, New York University College of Engineering, New York 53.

Borden Award to Dr. Holt.—Dr. L. Emmett Holt Jr., chairman of the department of pediatrics, New York University College of Medicine, received the annual Borden Nutrition award Oct. 5 at the American Academy of Pediatrics convention in Chicago. The award, a gold medal and $1,800, was bestowed "in recognition of his many contributions, during recent years, to the field of infant nutrition and, specifically, in recognition of his careful determinations of the minimal nutrition regulations for essential amino acids and vitamins." Dr. Holt, coauthor with his father, the late L. Emmett Holt, of "The Care and Feeding of Children," is a former president of the Society for Pediatric Research and a former vice-president of the American Society for Clinical Investigation.

Services for the Cerebral Palsied.—A survey by the Coordinating Council for Cerebral Palsy in New York City, in which more than 497 voluntary and public agencies returned questionnaires, disclosed that, although there were 268 agencies with some services available to persons with cerebral palsy in New York City in 1954, only 70 agencies reported serving 10 or more such afflicted persons in that year. As an outgrowth of the survey, the Coordinating Council for Cerebral Palsy is publishing a directory of services available to persons with cerebral palsy, which will list more than 200 agencies and describe programs, admission policy, and method of referral. Services for the retarded, blind, and hard of hearing will be included as well as medical, psychological, vocational, and recreational services. The directory (cost, 50 cents) will be available at the offices of the council, 47 W. 57th St., New York 19.

Hospital News.—A grant of $250,000 has been made to Lenox Hill Hospital from the estate of Alfred H. Caspary, New York stockbroker and philanthropist. The trustees have voted to apply it toward the hospital's 10-million-dollar second-century development program, bringing the fund to $1,730,000. The hospital's development program was launched a year ago to effect a thorough modernization of Lenox Hill's square block area between Lexington and Park avenues at 76th and 77th streets. The program calls for the replacement of all the hospital's older structures with new units. The first of these is scheduled for completion in 1957, when Lenox Hill will celebrate its 100th anniversary.——Dr. George E. Armstrong, vice-chancellor for medical affairs of New York University and director of New York University-Bellevue Medical Center, and Dr. Randolph A. Wyman, medical superintendent, Bellevue Hospital Center, announce the opening of a special ward for the treatment of children with acute poliomyelitis. The new, air-conditioned unit contains treatment rooms, laboratories, and separate quarters for isolation facilities. The unit, which will be under the direction of Dr. L. Emmett Holt Jr., chairman, department of pediatrics of New York University College of Medicine, was made possible through the interest of the Sister Elizabeth Kenny Foundation and a special gift of $60,000 from the Charles A. Dana Foundation of New York. A grant-in-aid from the Sister Elizabeth Kenny Foundation will provide funds for special care and study in collaboration with the New York University Post-Graduate Medical School department of orthopedic surgery, under the chairmanship of Dr. Walter A. L. Thompson, and Dr. Marvin A. Stevens, assistant clinical professor, and the department of neurosurgery, under the chairmanship of Dr. Thomas I. Hoen. It is anticipated that, during the winter and spring months when cases of poliomyelitis are at a minimum, the facilities will be used for treatment of other contagious diseases.

OKLAHOMA

University News.—The University of Oklahoma School of Medicine, Oklahoma City, has received a two-year grant (totaling $25,148) from the National Institutes of Health to study the relationship between stressful life experiences and fat changes in the blood. The work will be conducted by Dr. Stewart G. Wolf Jr., head of the department of medicine, and Dr. James F. Hammarsten, associate professor of medicine.

Expansion of Psychiatric Facilities.—The teaching of psychiatry has been expanded at the University of Oklahoma School of Medicine, Oklahoma City, with the opening of the first 20 of 60 neuropsychiatric beds at University Hospitals and the use of 114 affiliated beds at the Oklahoma City Veterans Administration Hospital and with the appointment of two full-time associate professors of psychiatry: Dr. Donald C. Greaves and Dr. John Gussen, both formerly affiliated with the Payne-Whitney Clinic in New York City. Dr. Gussen taught at Stockholm's Karoline University Hospital before coming to Oklahoma.

PENNSYLVANIA

Prize for Pediatric Residents and Interns.—The Philadelphia Pediatric Society offers a prize of $100 for the best paper submitted by an intern or a pediatric resident at any hospital in the Philadelphia area on any subject related to pediatrics, either of clinical or of research nature. Papers should be submitted to the secretary of the society by April 1, 1956. The award will be presented at the regular meeting of the society in May, 1956.

Philadelphia

Martin Oration by Vice-Admiral McIntire.—At a dinner given by the Philadelphia Proctologic Society in the Union League Club of Philadelphia Jan. 14, 1956, the Collier Ford Martin Oration, "The White House Physician and the Crowded Years," will be presented by Vice-Admiral Ross T. McIntire, U. S. Navy, retired. Cocktails at 6:30 p. m. will precede the dinner. Reservations ($12.50 per person) may be made through Dr. George I. Israel, 255 S. 17th St., Philadelphia 3.

University News.—Academic courses leading to the degree of master of science and doctor of philosophy in the basic medical sciences have been established at Hahnemann Medical College and Hospital of Philadelphia. The program is intended for qualified college graduates who are planning a career in teaching and research. Information may be obtained from M. John Boyd, Ph.D., Chairman of the Graduate Committee, Hahnemann Medical College, 235 N. 15th St., Philadelphia 2.——At the 108th annual commencement exercises of Hahnemann Medical College and Hospital of Philadelphia, honorary degrees were presented to Dr. Frank Brown Berry, New York, Assistant Secretary of Defense, Health and Medical, who spoke on "Relationship of Behavioral Sciences to Professional Education" and was awarded the degree of doctor of laws: Dr. William Nimon Parkinson, dean, Temple University School of Medicine, who received a doctorate of humane letters; and Drs. Charles Sherwood Cameron, New York, medical director of the American Cancer Society, and Charles L. Brown, then dean, Hahnemann Medical College and Hospital of Philadelphia, who were awarded the degree of doctor of science.——Temple University School of Medicine announces the following staff appointments: Drs. Clarence R. Parker, instructor in psychiatry; Margaret N. Dealy, instructor in psychiatry; Henry Harris Perlman, assistant professor of dermatology; Charles Harris, instructor in medicine; Richard T. Ellison Jr., assistant instructor in pediatrics; Nancy N. Huang, associate in pediatrics; and Georgiana M. Peacher, Ph.D., associate professor of phoniatrics in the department of bronchoesophagology. The following faculty members have been advanced in academic rank: Drs. Robert Robbins, professor of radiology; Heath D. Bumgardner, associate in obstetrics-gynecology; Frank S. Deming, associate in obstetrics-gynecology; Arthur F. Seifer, assistant professor of orthopedics; Howard H. Steel, associate in orthopedics; Samuel L. Cresson, associate in surgery; Richard S. Oakey, associate in plastic and reconstructive surgery; Thomas C. McAuliffe, instructor in surgery; John H. Wolf, instructor in surgery; Henry Baird, associate in pediatrics; Arthur E. McElfresh, associate in pediatrics; and Stanley J. Rugel, instructor in pediatrics.

TEXAS

Cancer Fellowships and Residencies.—The University of Texas M. D. Anderson Hospital and Tumor Institute announces that facilities and equipment for therapy and research in the field of malignant diseases are provided for qualified applicants seeking training and research opportunities in oncology. Fellowships and residencies are under the auspices of the University of Texas Postgraduate School of Medicine. For information write to Dr. Grant Taylor, Office of Education, University of Texas M. D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston 25.

VIRGINIA

Award for Community Service.—At a luncheon in New York City, Nov. 17, the Virginia Council on Health and Medical Care of Richmond was announced as winner in the group division of the 1954 Lane Bryant Annual awards for community service. Two awards of $1,000 are given—one to an individual and one to a group for the most outstanding volunteer service rendered during the past year. In competition with 700 other organizations, the Virginia Council on Health and Medical Care received the award for its medical program, which informs the public of the health problems facing them, works with county groups to improve and understand existing health facilities, and sets up programs to attract young physicians to rural areas. In 1954, more than 300 physicians and 78 communities sought the council's help in "getting together," and 35 physicians moved to Virginia as a result of this service. To alleviate the shortage of doctors in rural areas, the council encouraged a program whereby interns from two teaching centers in Virginia would spend from two to three months in one of the rural hospitals. It also provided 50 medical scholarships of $1,000 a year, which stipulated that a recipient of a grant must practice in a rural area for each year he holds the scholarship. Dr. Henry B. Mulholland, Charlottesville, vice-chairman of the A. M. A. Council on Medical Service, served as the first chairman of the Virginia Council on Health and Medical Care and is now its honorary chairman.

GENERAL

Phi Lambda Kappa Convention.—For the first time the Phi Lambda Kappa Medical Fraternity will hold its annual convention in New Jersey, Dec. 29-31, at the President Hotel in Atlantic City. The fraternity, which has a membership of more than 5,000 in 22 alumni clubs and 16 active undergraduate chapters, will devote many of its sessions to projects such as student loan funds in the United States, scholarships, and textbooks for Israeli students. At the formal dinner, Dec. 30, a gold medal will be presented to a medical scientist of international renown. The social program includes a Mardi Gras dinner and dance Thursday, the annual banquet Friday, and a New Year's Eve dinner and dance Saturday.

Fellowships for Psychiatrists.—A three-year fellowship program designed for staff psychiatrists in public mental hospitals and schools for the retarded has been announced by the American Psychiatric Association and the Smith, Kline & French Foundation of Philadelphia. From 6 to 12 fellowships will be awarded under a $90,000 grant by the Smith, Kline & French Foundation. Applicants are expected to submit a "fellowship project" entailing education, training, and experience in any of a number of specialties to the fellowship committee of eight psychiatrists. Details of the fellowships may be obtained from Smith, Kline & French Fellowship Committee, American Psychiatric Association, 1785 Massachusetts Ave., N. W., Washington 6, D. C.

Cancer Research Fellowships.—The Damon Runyon Memorial fund announces current allocations of $100,950, including nine cancer research fellowships. In the nine-year history of the fund, allocations have been made through 581 grants and 328 fellowships in 203 institutions in the 48 states, the District of Columbia, and 16 foreign countries. The new grants include: $16,900 to the Michael Reese Hospital, Chicago, where Dr. Albert Tannenbaum is conducting a project for the third successive year on "Factors Controlling the Genesis of Neoplasms"; $10,000 to the University of Chicago for cancer research under the direction of Dr. Charles B. Huggins; and $14,000 to the Stanford University School of Medicine, San Francisco, for a project, "Intermediate Phases in Lymphoid Tumor Induction."

Atomic Energy Advisory Group.—The U. S. Atomic Energy Commission, Washington 25, D. C., has appointed a 12-member advisory committee of state officials to consult with the commission on regulations concerning health and safety aspects of private atomic energy activities. The committee members, who represent state agencies such as health, labor, public utility, and legal departments, include Drs. Daniel Bergsma, New Jersey commissioner of health, Trenton; Roy L. Cleere, executive director, Colorado State Department of Public Health, Denver; Irving R. Tabershaw, director, division of industrial hygiene, New York State Department of Labor, New York City; Albert E. Heustis, commissioner, department of health, Lansing, Mich.; and Arthur B. Welsh, medical coordinator for civil defense, Department of Health of Pennsylvania, Harrisburg.

Intestinal Research Institute.—The Intestinal Research Institute has been incorporated in New York state as a nonprofit educational research foundation for the study of intestinal diseases. The incorporators are Drs. Earl J. Halligan, Jersey City, N. J., Alfred J. Cantor, Flushing, N. Y., Louis Wegryn, Elizabeth, N. J., and Paul Lahvis, Gowanda, N. Y. An initial project on the possible virus etiology of ulcerative colitis is planned. A research laboratory for study of the etiology and pathogenesis of ulcerative colitis has been established at 147-41 Sanford Avenue, Flushing, N. Y., headquarters of the International Academy of Proctology. Intestinal Research Institute funds will come primarily from contributions and grants. Physicians are invited to become contributing founders. For details write to the Intestinal Research Institute, Office of the Director, 147-41 Sanford Avenue, Flushing, L. I., New York.

Fellowships in Pediatric Rehabilitation.—Dr. George G. Deaver, director, Children's Division, Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, and Mr. Leonard W. Mayo, director of the Association for the Aid of Crippled Children, jointly announce the availability of fellowships for graduate social workers in the field of pediatric rehabilitation. These fellowships provide from 6 to 12 months of planned experience that will cover all aspects of rehabilitation for physically handicapped children and adults and include direct services to the individual and his family, observation visits to appropriate community agencies, attendance at special lectures and educational institutes, and participation in staff conferences. The Children's Division uses the "Multiple Discipline Team Approach" for evaluation, program planning, and provision of services on both inpatient and outpatient basis. The fellowships ($250 a month) are open to graduates of approved schools of social work who have had a minimum of two years of paid experience in a social agency, preferably in a hospital setting. Applications may be made to Miss Florence I. Mosher, Children's Division, the Institute of Physical Medicine and Rehabilitation, 400 E. 34th St., New York 16.

Annual Crumbine Awards.—The first annual national awards in memory of Dr. Samuel J. Crumbine, established by the public health committee of the Paper Cup and Container Institute, were presented to the New York City Department of Health and the Cowlitz-Wahkiakum District Health Department of the State of Washington, Nov. 15, at the annual meeting of the American Public Health Association in Kansas City, Mo. The New York City Department of Health, under the direction of Dr. Leona Baumgartner, was honored for "outstanding achievement in the development of a comprehensive program of environmental sanitation," and the Cowlitz-Wahkiakum department, headed by Dr. Donald Champaign, Longview, Wash., for "outstanding achievement in the development of a program of eating and drinking sanitation." The winning departments each received a plaque bearing a bronze medal and an inscribed plate, and members of the departments instrumental in carrying out the winning programs received individual medals, reproducing the medal appearing on the plaque. Dr. Crumbine, who died last year at the age of 91, was instrumental in crusades against the germ-carrying roller towel, the common drinking cup, and the housefly.

Trudeau Fellowships.—The American Trudeau Society, medical section of the National Tuberculosis Association, provides a number of resident fellowships to promote the training of clinicians, medical teachers, and administrators in the field of tuberculosis and related pulmonary diseases. Awards are open to citizens of the United States for work within this country. Candidates should hold the degree of doctor of medicine. Preference will be given to those not more than 30 years of age. Awards are made for graduate study in internal medicine in an approved hospital. The American Board of Internal Medicine will accept one such year as part of the prerequisite training for certification in internal medicine and in pulmonary diseases. Applications must be received by Feb. 1. Appointments may begin on any date, and the applicant may choose the hospital in which he wishes to study.

A few fellowships at a higher level of training and award are offered to specially qualified candidates who have been assured of a continued teaching appointment on completion of training. For particulars write the Director of Medical Education, American Trudeau Society, c/o the Henry Phipps Institute, Seventh and Lombard streets, Philadelphia 47.

Genitourinary Disease Awards.—Francis Amory prizes of $3,500 each, for the discovery of measures for the relief or cure of genitourinary diseases, were awarded by the American Academy of Arts and Sciences in Boston, Oct. 5, to the following:

Frederic E. B. Foley, St. Paul, for inventive and surgical genius productive of contrivances, instruments, and operations of great value.

Choh Hao Li, Ph.D., Berkeley, Calif., for work on the relation of the anterior pituitary hormones to the functioning of the human reproductive organs.

Thaddeus R. R. Mann, Cambridge, England, for contributions in the rapidly expanding field of biochemistry of reproductive functions providing basic data stimulating research and clinical progress.

Terence J. Millin, London, England, for contribution to surgery by devising the technique of retropubic prostatectomy for benign hyperplasia of the prostate and for adapting this technique to radical prostatectomy and vesiculectomy for the cure of cancer of the prostate.

Warren O. Nelson, Ph.D., Iowa City, for studies of the structural relationships of the male sex organs and of the factors that determine the functional activities of the various components thereof.

Frederick J. Wallace, New York City, for cooperation with the urological profession in developing diagnostic and therapeutic instruments which have contributed to the technical advances in this specialty.

Lawson Wilkins, Baltimore, for his contributions to fundamental knowledge of growth and development of secondary sex characteristics in man and his brilliant application of adrenal cortical hormone to their management and treatment.

Awards in Poliomyelitis.—The National Foundation for Infantile Paralysis (120 Broadway, New York 5) has announced grants totaling $1,372,513 for professional education in selected fields. The new awards bring to a total of $21,562,456 the March of Dimes funds authorized since 1938 for the foundation's comprehensive program of professional education. In all, 5,334 scholarships and fellowships have been awarded from 1938 through Aug. 30, 1955. Of the $1,372,513 newly authorized, $681,513 was granted to medical schools, universities, hospitals, and professional associations throughout the United States, and $691,000 was appropriated for March of Dimes fellowships and scholarships. The foundation announces that 151 students were recently awarded scholarships to complete their studies in physical therapy, bringing the total number of such scholarships awarded by the foundation since 1942 to 2,365, for which almost 3 million dollars had been appropriated. The present scholarship students are residents of 34 states, the District of Columbia, and the Territory of Hawaii and are studying in 25 approved schools of physical therapy. The foundation has awarded scholarships for the current year to 56 students to complete their education in medical social work. The total number of such scholarships awarded by the foundation since 1944 is now 681, for which almost one million dollars was authorized. The present scholarship recipients are residents of 24 states and are studying in 19 of the schools of social work offering an approved curriculum in medical social work.

Albert Lasker Awards.—At its annual meeting in Kansas City, Mo., the American Public Health Association presented the 1955 Albert Lasker awards for outstanding achievement in medical research and public health administration to the following recipients:

Karl Paul Link, Ph.D., professor of biochemistry, University of Wisconsin, Madison, for "fundamental contributions to our understanding of the mechanism of blood clotting and for the development of methods for the improved treatment of thrombo-embolic conditions." Dr. Link is the discoverer of the anticoagulant, bishydroxycoumarin.

Dr. Robert D. Defries, director, the Connaught Research Laboratories, University of Toronto Faculty of Medicine, Canada, for "distinguished leadership" in the development of preventive medicine and public health in Canada. The laboratories, under Dr. Defries, prepared and supplied nearly all the virus used in the field trials of the Salk poliomyelitis vaccine in 1954.

Dr. C. Walton Lillehei, associate professor of surgery, University of Minnesota Medical School, Minneapolis, jointly with Drs. Morley Cohen, Herbert E. Warden, and Richard L. Varco, of the same institution, for "advances in cardiac surgery making possible more direct and safer approaches to the heart." Dr. Lillehei and his associates originated the "cross-circulation" surgical technique for the correction of congenital heart defects.

The Menninger Foundation and Clinic, Topeka, Kan., group award citing Drs. Karl A. and William C. Menninger for "a sustained and highly productive attack against mental diseases, bearing fruit in better hospitals, better trained staffs and greatly improved care of the patient."

The Nursing Services of the U. S. Public Health Service, Washington, D. C., group award citing the Misses Lucile Petry Leone, Pearl McIver, and Margaret Arnstein, for "distinguished contributions to the advancement and well-being of the nation" through their leadership in public health nursing.

A team of tuberculosis researchers, group award to Drs. Walsh McDermott and Carl Muschenheim, New York Hospital-Cornell Medical Center, New York, Drs. Edward H. Robitzek and Irving J. Selikoff, Sea View Hospital, Staten Island, N. Y., together with Hoffmann-La Roche Research Laboratories, Nutley, N. J., and the Squibb Institute for Medical Research, New Brunswick, N. J., for "contributions of the first order to our knowledge of the principles of the treatment and control of tuberculosis" with the isoniazid drugs.

The individual winners received prizes of $1,000, citations, and gold statuettes of the Winged Victory of Samothrace.

Course in Diabetes and Metabolic Problems.—The American Diabetes Association will offer its fourth postgraduate course in diabetes and basic metabolic problems at the Statler Hilton Hotel, Dallas, Texas, Jan. 25-27, 1956. The course will be under the directorship of Dr. Edwin L. Rippy, associate professor of clinical medicine, Southwestern Medical School of the University of Texas and Baylor University Hospital, Dallas. The fee for members of the association is $40; for nonmembers, $75. Graduate students, fellows, residents, interns, and medical students engaged in full-time study in medicine and allied sciences in the local schools and hospitals may attend without charge on presentation of a letter requesting their admission from their dean or the head of their department or service. Round-table luncheons (by subscription) will be held daily, 12:15-2:15 p. m. On Wednesday the luncheon guests will be Dr. Charles H. Best, Toronto, Canada; Dr. Arthur Grollman, Dallas, Texas; Morton F. Mason, Ph.D., Dallas, Texas; Dr. Jerome W. Conn, Ann Arbor, Mich.; and Dr. W. Stanley Hartroft, St. Louis. On Thursday a panel discussion, "Diabetes and Pregnancy," will be presented by Drs. Priscilla White, Boston; Blair Holcomb, Portland, Ore.; George M. Guest, Cincinnati; Robert L. Jackson, Columbia, Mo.; and Jules W. Vieaux, Dallas, Texas. Luncheon guests on Friday will be Dr. Best; Drs. Henry M. Winans and Everett C. Fox, Dallas, Texas; Dr. Beverly Chew Smith, New York; Dr. E. Paul Sheridan, Denver; and Dr. Garfield G. Duncan, Philadelphia. Dr. Edward L. Bortz, Philadelphia, will preside at the banquet Wednesday, 7:30 p. m. On Thursday a social hour at 6:30 p. m. will be sponsored by the Dallas Diabetes Association and Dallas Academy of Internal Medicine. Multiple informal seminars will be conducted Friday, 3:45 p. m. At 8 p. m. the Dallas Diabetes Association will present a panel, with Dr. Best, Dr. Henry T. Ricketts, Chicago, president of the national association, and Drs. Randall G. Sprague, Rochester, Minn., Alexander Marble, Boston, and Thomas P. Sharkey, Dayton, Ohio, as collaborators.

Society News.—The **American Board of Pathology** recently elected the following officers: Dr. Shields Warren, Boston, president; Dr. William B. Wartman, Chicago, vice-president; and Dr. Edward B. Smith, Indianapolis, secretary-treasurer.——The recently organized **American Society for the Aged** has established offices at 590 Fifth Ave., New York 36. Dr. Edmund V. Cowdry Jr., Washington University School of Medicine, St. Louis, is chairman of the scientific committee.——Officers of the **American Association of Medical Clinics** include: Dr. R. Franklin Jukes, Akron, Ohio, president; Dr. G. Gordon McHardy, New Orleans, vice-president and president-elect; and Dr. Harold D. Caylor, Bluffton, Ind., secretary-treasurer. The 1956 meeting will be held in Washington, D. C., Oct. 26-28.——Newly elected officers of the **Southwestern Medical Association** include: Dr. John H. Dettweiler, Albuquerque, N. Mex., president; Dr. Celso C. Stapp, El Paso, Texas, president-elect; Dr. Ernest W. Lander, Roswell, N. Mex., vice-president; and Dr. Russell L. Deter, El Paso, Texas, secretary-treasurer. The 1956 meeting will be held in Albuquerque, N. Mex.——Newly elected officers of the **Association of State and Territorial Health Officers** include: Dr. Daniel Bergsma, Trenton, N. J., president; Dr. Grady F. Mathews, Oklahoma City, vice-president; and Dr. Franklin D. Yoder, Cheyenne, Wyo., secretary-treasurer.——Newly elected officers of the **Clinical Orthopaedic Society** include: Dr. I. S. McReynolds, Houston, Texas, president; Dr. Wallace S. Duncan, Cleveland, vice-president; and Dr. Marcus J. Stewart, Memphis, Tenn., secretary-treasurer. The 1956 meeting will be held in Cleveland.——The **Central Society of Nuclear Medicine**, recently organized as a regional society to encourage and promote interest, work, and investigation in nuclear medicine, is open to physicians and other professional workers in the field. It is planned to have three meetings per year. The following officers were elected at the first meeting: Dr. Irvin F. Hummon Jr., Chicago, president, Donalee Tabern, Ph.D., North Chicago, Ill., vice-president, Dr. Ervin Kaplan, Hines, Ill., treasurer, and Robert S. Landauer, Ph.D., Chicago, secretary. All those interested are invited to contact the secretary: Robert S. Landauer, Ph.D., Radiation Center Building, 1903 W. Harrison St., Chicago 12.

CORRECTION

Intravenous Cholecystocholangiography.—In the article entitled "Intravenous Cholecystocholangiography" in The Journal, Dec. 3, 1955, page 1351, the seventh line from the top of the left-hand column should be as follows: "intradermal and intravenous sensitivity tests should be."

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

1957 Clinical Meeting, Philadelphia, Dec. 3-6.

1958 Annual Meeting, San Francisco, June 23-27.

Annual Congress on Industrial Health, Sheraton-Cadillac Hotel, Detroit, Jan. 23-24. Mr. Clark D. Bridges, 535 N. Dearborn St., Chicago 10, Acting Secretary.

Annual Congress on Medical Education and Licensure, Palmer House, Chicago, Feb. 11-14. Dr. Edward L. Turner, 535 North Dearborn St., Chicago 10, Secretary.

American Academy of Allergy, Chase Hotel, St. Louis, Feb. 6-8. Dr. Francis C. Lowell, 65 East Newton St., Boston, Secretary.

American Academy of Occupational Medicine, Netherlands-Plaza Hotel, Cincinnati, Feb. 15-17. Dr. Leonard J. Goldwater, 600 W. 168th St., New York 32, Secretary.

American Academy of Orthopaedic Surgeons, Palmer House, Chicago, Jan. 28-Feb. 2. Dr. John R. Norcross, 122 South Michigan Blvd., Chicago 3, Secretary.

American College of Radiology, Drake Hotel, Chicago, Feb. 10-11. Mr. William C. Stronach, 20 North Wacker Drive, Chicago 6, Executive Secretary.

American Society for Surgery of the Hand, Chicago, Jan. 27. Dr. George V. Webster, 1145 East Green St., Pasadena 1, Calif., Secretary.

Eastern Section, American Laryngological, Rhinological and Otological Society, Boston, Jan. 13. Dr. John A. Murtagh, Dartmouth College, Hanover, N. H., Vice President.

Los Angeles Midwinter Medical Convention, Biltmore Hotel, Los Angeles, Jan. 3-5. Dr. Paul D. Foster, 1925 Wilshire Blvd., Los Angeles 58, General Chairman.

Medical Society Executives Conference, Drake Hotel, Chicago, Feb. 6-8. Mr. H. Martin Baker, 1102 South Hillside, Wichita 17, Kansas, Secretary.

Middle Section, American Laryngological, Rhinological and Otological Society, Netherland Plaza, Cincinnati, Jan. 16. Dr. William H. Craddock, 2328 Auburn Ave., Cincinnati 19, Vice President.

Neurosurgical Society of America, Hotel Key Biscayne, Key Biscayne, Miami, Fla., Jan. 18-21. Dr. Lester A. Mount, 700 West 168th St., *New York 32, Secretary.*

Northwest Society for Clinical Research, University of Oregon Medical School, Portland, Ore., Jan 21. Dr. Arthur L. Rogers, 1216 S.W. Yamhill St., Portland 5, Ore., Secretary.

Regional Meetings, American College of Physicians:

Shreveport, La., Jan. 14. Dr. M. D. Hargrove, 803 Jordan St., Shreveport, La., Governor.

Philadelphia, Jan. 20. Dr. Thomas M. McMillan, 330 South 9th St., Philadelphia 7, Governor.

Saskatoon, Sask., Feb. 3-4. Dr. C. H. A. Walton, Winnipeg Clinic, Winnipeg, Man., Canada, Governor.

Tucson, Ariz., Feb. 11. Dr. Leslie R. Kober, 15 East Monroe St., Phoenix, Ariz., Governor.

Sectional Meetings, American College of Surgeons:

Jacksonville, Fla., Hotel George Washington, Jan. 16-18. Dr. Kenneth A. Morris, 2522 Oak St., Jacksonville 4, Fla., Chairman.

Philadelphia, The Bellevue-Stratford, Feb. 13-16. Dr. Calvin M. Smyth Jr., Abington Memorial Hospital, Abington, Pa., Chairman.

Society of University Surgeons, Hotel Claypool, Indianapolis, Feb. 8-10. Dr. C. Rollins Hanlon, 1325 South Grand Blvd., St. Louis 4, Secretary.

South Atlantic Association of Obstetricians and Gynecologists, Hollywood Beach Hotel, Hollywood, Fla., Jan. 28-Feb. 1. Dr. C. H. Mauzy, Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

Southern Section, American Federation for Clinical Research, Jung Hotel, New Orleans, Jan. 20. Dr. John H. Moyer, 1200 M.D. Anderson Blvd., Houston, Texas, Secretary.

Southern Section, American Laryngological, Rhinological and Otological Society, The Shamrock, Houston, Texas, Jan. 27-28. Dr. J. M. Robison, 1304 Walker Ave., Houston 2, Texas, Chairman.

U. S. Section, International College of Surgeons, Regional Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va., Feb. 12-15. Dr. E. G. Gill, 711 South Jefferson St., Roanoke, Va., Chairman.

Western Section, American Federation for Clinical Research, Golden Bough Theater, Carmel, Calif., Jan. 26. Dr. Charles M. Grossman, 301 Selling Bldg., Portland 5, Ore., Secretary.

Western Section, American Laryngological, Rhinological and Otological Society, County Medical Society Bldg., San Francisco, Jan. 21. Dr. David D. DeWeese, 1216 S. W. Yamhill St., Portland, Ore., Vice President.

Western Society for Clinical Research, Carmel-by-the-Sea, Calif., Jan. 27-28. Dr. Arthur J. Seaman, University of Oregon Medical School, Portland 1, Ore., Secretary.

FOREIGN AND INTERNATIONAL

All India Medical Conference, Jaipur, India, Dec. 26-28. Dr. B. N. Consul, Association Bldg., S.M.S. Hospital Premises, Jaipur, India, Organizing Secretary.

Canadian Medical Association, Quebec, P. Q., Canada, June 10-14, 1956. Dr. Arthur D. Kelly, 150 St. George St., Toronto 5, Ont., Canada, Secretary.

Conference of International Union for Health Education of the Public, Rome, Italy, April 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1er, France, Secretary-General.

Congress of International Anesthesia Research Society, Miami Beach, Fla., U.S.A., April 9-12, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, *Snellmansgatan 16 C 36, Helsinki, Finland.*

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Somerset, Boston, Mass., U.S.A., Aug. 27-Sept. 1, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, Sept. 12-15, 1956. Prof. Umberto Serafini, Instituto de Patologia Medica, Viale Morgagni, Florence, Italy, Secretary-General.

European Congress of Cardiology, Stockholm, Sweden, Sept. 10-14, 1956. Dr. Karl Erik Grewin, Sodersjukhuset, Stockholm, Sweden, General Secretary.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May, 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik, Hamburg-Eppendorf, Germany.

Health Congress, Royal Society for the Promotion of Health, Blackpool, England, April 24-27, 1956. Mr. P. Arthur Wells, 90 Buckingham Palace Road, London S.W. 1, England, Secretary.

Inter-American Congress of Cardiology, Havana, Cuba, Nov. 4-10, 1956. For information address: Dr. Ramon Aixala, Apartado 2108, Havana, Cuba.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Congress Against Alcoholism, Istanbul, Turkey, Sept. 10-15, 1956. For information address: International contre l'Alcoolisme, Case Gare 49, Lausanne, Switzerland.

International Congress on Animal Reproduction, Arts School, University of Cambridge, Cambridge, England, June 25-30, 1956. Dr. Joseph Edwards, Production Division, Milk Marketing Board, Thames Ditton, Surrey, England, Hon. Secretary.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress of Dietetics, Congress Palace, Esposizione Universale Roma, Rome, Italy, Sept. 10-14, 1956. Prof. E. Serianni, Associazione Dietetica, Italiana, via dei Penitenzieri N. 13, Rome, Italy, Secretary General.

International Congress on Diseases of the Chest, Cologne, Germany, Aug. 19-23, 1956. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, U. S. A., Executive Director.

International Congress of Entomology, Montreal, Canada, Aug. 17-25, 1956. Mr. J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ont., Canada, Secretary.

International Congress of Gastroenterology, London, England, July 18-21, 1956. Mr. Hermon Taylor, London Hospital, White Chapel, London E.1, England, Honorable Secretary.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Human Genetics, Copenhagen, Denmark, Aug. 1-6, 1956. For information address: The University Institute for *Human Genetics, Tagensvej 14, Copenhagen N, Denmark.*

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Palmer House, Chicago, Illinois, U. S. A., Sept. 9-13, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of Neo-Hippocratic Medicine, Montecatini Terme, Italy, May 20-22, 1956. Dr. Valente, 41 Avenue Verdi, Montecatini Terme, Italy, Secretary-General.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, *President.*

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for Physical Therapy, Hotel Statler, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International Genetics Symposium, Tokyo and Kyoto, Japan, Sept. 6-12, 1956. For information address: Secretary, International Genetics Symposium, Science Council of Japan, Ueno Park, Tokyo, Japan.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

Latin American Congress of Physical Medicine, San Juan, Puerto Rico and Curacao, N.W.I., Jan. 29-Feb. 8, 1956. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York 21, New York, U. S. A., Executive Director.

Medical Women's International Association, Extraordinary General Assembly, Burgenstock, Nidwalden, Switzerland, Sept. 21-23, 1956. Dr. Janet Aitken, 30a Acacia Road, London N.W. 1, England, Secretary.

Middle East Medical Assembly, Campus, American University of Beirut, Beirut, Lebanon, April 7-9, 1956. Dr. Virgil C. Scott, American University of Beirut, Beirut, Lebanon, Chairman.

National Congress of Pediatrics, Cuidad Universitaria, Mexico D.F., Mexico, May 1-5, 1956. Dr. Ignacio Avila Cisneros, Calzada de Madereros No. 240, Mexico 18, D.F., Mexico, Coordinator.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P. O Box 672, Cairns, N.Q., Australia, Secretary.

Pan-American Academy of General Practice, San Juan, Puerto Rico and Curacao, N.W.I., Jan. 29-Feb. 8, 1956. Dr. Arturo Martinez, 54 East 72d St., New York 21, New York, U. S. A., Secretary.

Pan American Congress of Gastroenterology, Havana, Cuba, Jan. 20-27, 1956. For information address: Dr. Norberto M. Stapler, 1267 J. E. Uriburu, Buenos Aires, Argentine, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, San Juan, Puerto Rico, April 8-12, 1956. Dr. C. E. Munoz MacCormick, Apartado 9111, Santurce 29, Puerto Rico, Secretary General.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. Dr. Maxwell Roland, 114-20 Queens Boulevard, Forest Hills 75, New York, N. Y., U. S. A., Chairman, Liaison Committee.

World Medical Association, Havana, Cuba, Oct. 9-15, 1956. Dr. Louis H. Bauer, 345 East 46th St., New York 17, New York, U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Written.* Various locations in the United States and Canada, July 20. Final date for filing application is Jan. 20. *Oral.* Miami Beach, Mar. 18-22. Sec., Dr. C. B. Hickcox, 80 Seymour St., Hartford 15, Conn.

American Board of Dermatology and Syphilology. *Written.* Various centers, July 26. *Oral.* St. Louis, Oct. 12-15. Final date for filing applications is April 1. Sec., Dr. B. M. Kesten, One Haven Ave., New York 32.

American Board of Internal Medicine: *Written.* Oct. 15, 1956. Final date for filing application is May 1. *Oral Examinations in 1956.* New Orleans, Feb. 7-10; Los Angeles, April 12-14; Chicago, June 7-9. Final date for filing application for these three oral examinations is Jan. 3. New York City, Sept. 21-25. Final date for filing application is April 1. Exec. Sec., Dr. William A. Werrell, 1 West Main St., Madison 3, Wis.

American Board of Obstetrics and Gynecology: *Written Examination and submission of Case Reports. Part I.* Various locations in United States and Canada, and military centers outside of the Continental United States, Feb. 3, 1956. Final date for filing application was Oct. 1. *Oral and Pathological Examinations. Part II.* Chicago, May 11-20, 1956. Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: *Written.* January 24-26, 1956. *Practical Examination.* San Francisco, June 18-21, St. Louis, Oct. 20-25. Applications for 1957 written examination must be filed before July 1, 1956. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

American Board of Orthopaedic Surgery: *Oral.* Jan. 26-27. Final date for filing application was Aug. 15. *Part I. Oral and written.* Various centers, April, 1956. Final date for filing application was Nov. 30. Sec., Dr. Harold A. Sofield, 116 South Michigan Ave., Chicago 3.

American Board of Otolaryngology. *Oral.* Montreal, Canada, May 6-10. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

American Board of Physical Medicine and Rehabilitation. *Parts I and II.* Chicago, June 16-17. Sec., Dr. Earl C. Elkins, 200 First St., S. W., Rochester, Minn.

American Board of Plastic Surgery. *Entire Examination.* Buffalo, May 13-15. Final date for filing case reports is Jan. 1. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

American Board of Psychiatry and Neurology: New York City, December, Philadelphia, April 16-18, 1956. Sec., Dr. David A. Boyd, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: Atlanta, Ga., Mar. 6-10. Final date for filing application was Dec. 1.; Chicago, June 5-9. Final date for filing applications is Jan. 1.; Los Angeles, Sept. 30-Oct. 4. Final date for filing applications is June 1. Sec., Dr. B. R. Kirklin, Kahler Hotel Bldg., Rochester, Minn.

American Board of Surgery: *Part I.* Centers throughout the United States, in Europe and in the Far East, March 28. Closing date for the March examination was December 1. *Part II.* St. Louis, Dec. 12-13; New Orleans, Jan 16-17; Los Angeles, Feb. 13-14; San Francisco, Feb. 16-17; Durham, March 12-13; Boston, May 14-15 and Philadelphia, June 4-5. Sec., Dr. John B. Flick, 255 S. Fifteenth St., Philadelphia 2.

Board of Thoracic Surgery. *Written.* February 1956. Closing date for filing application was Dec. 1. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2, Mich.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of The Journal. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, Dec. 26

ABC-TV, 8 p. m. EST. "TV Reader's Digest" offers a drama based on the experiences of passengers aboard a snowbound train in Donner Pass on Jan. 13, 1952.

Monday, Jan. 2

NBC-TV, 11 a. m.-noon. "Home" presents Howard Whitman's "News of Medicine and Health."

NBC-TV, 9 p. m. EST. "Medic" pays tribute to anesthesiologists in a teleplay titled "A Time for Sleep."

ABC-TV, 9:30 p. m. EST. "Medical Horizons" takes its remote unit to Jersey City Medical Center for a report on research into diseases of the liver. Produced in cooperation with the American Medical Association.

MAGAZINES

Look, Dec. 27, 1955

"The Education of Dr. Fuchs"

Picture story of a Viennese woman doctor who is completing her internship at Manhattan's Beth David Hospital, in New York.

"Crisis," by Fletcher Knebel

A detailed account of the first hours after President Eisenhower's heart attack, including the medical attention given to the President and the shock in administrative circles caused by the news of his illness.

Redbook, January, 1956

"What Your Doctor Should Charge"

Using what the magazine calls "the first reliable figures on medical fees in all sections of the country," this article lists fees for 10 operative procedures and home and office calls as charged in 11 large cities across the country. Purpose of the article, according to the concluding paragraph, is to serve as "a challenge to both the medical profession and the people it serves to go further in eliminating one of the most important sources of friction and misunderstanding between physicians and patients," the "mystery" about the fees doctors charge for routine cases.

"How to Stay Healthy This Winter," by Alton L. Blakeslee

The author points out that the human body is under a greater strain in winter than at any other time of the year and lists "precautions" recommended by medical authorities to guard against added wintertime health hazards.

Coronet, January, 1956

"The Miracle of Face Planing," by Marian and Harold Wolfson

Dermatologists are using dermabrasion (facial planing with a rotating wire brush) for rhinophyma and to remove acne scars, moles, wrinkles, and freckles.

"It's Croup—Be Careful," by Ralph Bass

A general discussion of the symptoms of croup, with advice on home treatment.

"Food After 40," by Bruce Bliven

Experts in the field of nutrition "believe that if we ate proper foods, in proper amounts, all through our lives, we would live substantially longer and be much healthier than we are now." The author says that older people need fewer calories and should take special care in planning their diets.

Ladies' Home Journal, January, 1956

"Understanding Childhood Nephrosis," by Peter Briggs

In a short feature, the author discusses nephrosis in children and points out that neither the cause nor a cure is known.

DEATHS

Williams, Horatio Burt, Greenwich, Conn.; born in Utica, N. Y., Sept. 17, 1877; Syracuse University College of Medicine, 1905; a registered engineer; assistant in physiology at Cornell University Medical School, New York City, from 1907 to 1911; since 1942 Dalton professor emeritus of physiology at Columbia University College of Physicians and Surgeons, New York City, where he joined the faculty as an associate in physiology, later became assistant professor, Dalton professor, and for many years executive officer of the department; an associate member of the American Medical Association and for many years member of its Council on Physical Therapy; member of the Medical Society of the State of New York, American Society of Anesthesiologists, Inc., National Committee on Radiation Protection, American Physiological Society, American Physical Society, Physical Society of London, Optical Society of America, Acoustical Society of America, New York Academy of Medicine, Society of American Military Engineers, American Institute of Electrical Engineers, National Society of Professional Engineers, Connecticut Society of Professional Engineers, Society of Experimental Biology and Medicine, Saint Nicholas Society of New York, Psi Upsilon, Nu Sigma Nu, and Alpha Omega Alpha; past-president and vice-president of the Columbia chapter of Sigma Xi; member of the committee on safety of the American Institute of Electrical Engineering; served as a captain in the Corps of Engineers of the U. S. Army from 1917 to 1919, when he became instructor in the Engineering School; captain in the Engineers Reserve Corps from 1919 to 1939; consultant at Greenwich (Conn.) Hospital and the Columbia Presbyterian Medical Center; director and technical adviser, Cambridge Instrument Company; died in the Harkness Pavilion of Columbia Presbyterian Medical Center in New York City Nov. 1, aged 78.

Fry, Clements Collard ⊕ New Haven, Conn.; born in Jersey City, N. J., Nov. 15, 1892; Northwestern University Medical School, Chicago, 1924; interned at the Louisville (Ky.) City Hospital; formerly a resident physician at the Boston Psychopathic Hospital; in 1925 assistant in psychiatry at the Harvard Medical School in Boston; later joined the faculty of Yale University School of Medicine, where he was lecturer in psychiatry and psychiatrist-in-chief in the department of university health; during World War II served for seven months with the Lend-Lease Administration in Washington, and later served also with the National Research Council and the department of the Army as an adviser on public health, nutrition, and medical supplies, in the planning, research, and special problems divisions of these agencies; in June, Michigan State College, East Lansing, celebrating its centennial, honored him with a centennial award for "outstanding contributions to society and for achieving distinction in endeavors, and for setting the highest standards of accomplishment"; in the fall of this year he received the first citation ever awarded by the Connecticut Association for Mental Hygiene for his long and distinguished service; visiting psychiatrist at Wesleyan (Conn.) University from 1927 to 1932; served as a trustee of the Fairfield (Conn.) State Hospital; associate psychiatrist at the Grace-New Haven Community Hospital university service; co-author, with Edna G. Rostow, of "Mental Health in College" and of "The Anatomy of Personality" with Dr. Howard W. Haggard; died in the Gaylord Farms Sanatorium, Wallingford, Nov. 27, aged 63.

Wilson, Fred Bailey ⊕ Beaver, Pa.; born in Beaver Nov. 16, 1879; University of Pennsylvania Department of Medicine, Philadelphia, 1905; past-president of the Beaver County Medical Society; for many years president of the Beaver County Tuberculosis Association; for 25 years on the executive committee of the state tuberculosis association; fellow of the American College of Physicians; member of the founders group of the American Board of Internal Medicine; served during World War I; largely responsible for the establishment of the Beaver County Sanatorium in Monaca, where he was first medical director, and at the time of his death consulting director; on the medical staff of Providence Hospital in Beaver Falls, Rochester (Pa.) General Hospital, where he was chief of staff for many years, and the Beaver Valley General Hospital in New Brighton, Pa.; died in the Cleveland (Ohio) Clinic Hospital Aug. 18, aged 75, of a ruptured arteriosclerotic aneurysm of the abdominal aorta.

Blair, Arless Arland ⊕ Fort Smith, Ark.; born in Scranton Aug. 21, 1891; University of Tennessee College of Medicine, Memphis, 1916; associate clinical professor of medicine at the University of Arkansas School of Medicine, Little Rock; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians, of which he was governor; past-president of the Sebastian County Medical Society and the Sebastian County Tuberculosis Association; for many years a member of the school board; served during World War I; consultant on internal medicine, Veterans Administration Hospital in Fayetteville; affiliated with St. Edward's Mercy Hospital, where he was formerly chief of staff; on the staffs of the Crawford County Hospital at Van Buren and the Sparks Memorial Hospital; a director of the Superior Savings and Loan Company; died Oct. 24, aged 64.

Wolfer, John Adams ⊕ Banning, Calif.; born in Decatur, Ill., Dec. 7, 1880; Northwestern University Medical School, Chicago, 1908; professor of surgery emeritus at his alma mater, where he served as director of the tumor clinic; member of the founders group of the American Board of Surgery; member of the American Surgical Association; past-president of the Chicago Surgical Society; fellow of the American College of Surgeons; in 1950 was awarded the honor medallion of the Illinois Division of the American Cancer Society for outstanding work in cancer control; formerly chairman of the cancer committee of the Illinois State Medical Society; past-president of the Northwestern University Medical School Alumni Association; served on the staffs of the Passavant Memorial, Wesley Memorial, and Cook County hospitals in Chicago; died Nov. 21, aged 74.

Ramsey, Wayne Stevenson, Shreveport, La.; Harvard Medical School, Boston, 1912; member of the Ohio State Medical Association; served as president of the Washtenaw County (Mich.) Medical Society and as secretary of the Michigan Crippled Children Commission; at one time health commissioner of Greenville, Ohio, and Darke County; in 1944 appointed health officer of Deschutes County with headquarters in Bend; formerly associated with the U. S. Public Health Service; died in the Willis Knighton Clinic and Hospital Nov. 16, aged 69, of hypertensive cardiovascular disease, cerebral thrombosis, and arteriosclerosis.

Presson, Virgil Guy ⊕ Tucson, Ariz.; University of Oklahoma School of Medicine, Oklahoma City, 1923; fellow of the American College of Physicians; past-president of the Pima County Medical Society and past vice-president of the Arizona State Medical Association; served overseas during World War I; at one time practiced in Santa Ana, Calif., where he was health officer of Orange County; on the staffs of the Pima County General Hospital, Tucson Medical Center, and the St. Mary's Hospital and Sanatorium, where he died Oct. 2, aged 59, of acute pancreatitis.

Alava, Petronio ⊕ Wilmington, Del.; Washington University School of Medicine, St. Louis, 1923; interned at St. Alexis Hospital in Cleveland; fellow of the International College of Surgeons; chief of surgery at St. Francis Hospital, where he served a residency; died Oct. 11, aged 56, of acute coronary thrombosis.

Bailey, William James, Fort Lauderdale, Fla.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; fellow of the American College of Surgeons; died in the Broward General Hospital Sept. 28, aged 82, of arteriosclerotic heart disease, bronchopneumonia, and cerebral thrombosis.

⊕ Indicates Member of the American Medical Association.

FOREIGN LETTERS

BELGIUM

Privileged Communication.—At the Belgo-Luxemburgian Union of Penal Law the moral and social value of keeping professional secrets was recognized, but it was stated that present legislation based on modern sociology sometimes requires exceptions to this principle in the interests of society. In the matter of judicial inquiries, such as inquests and investigations, some maintain that the physician is bound to hold secret only that which is revealed to him directly by the patient and not information he may have acquired from other sources, or from his examinations. If the patient is a minor the jurists believe that the parents have the right to know everything from the physician. There was some disagreement concerning the seizure of medical documents by those legally in authority. The purpose of such papers is to help the physician's memory and as such cannot be taken if the physician is a testifying witness; they can be taken only if he himself is incriminated. The president of the meeting proposed that as a criterion for divulging professional secrets the physician should let his conscience be his guide.

CANADA

Alberta Medical Insurance Plan.—In 1935 the province of Alberta passed a health insurance act that was never put into effect and was repealed in 1953. At this time another act to provide for hospitalization and treatment services was passed. The act permits the government to take care of costs of medical care of Alberta residents receiving certain forms of assistance or allowances under other provincial acts. Last spring, a section of the 1953 act permitting payment of a subsidy to insurance organizations providing cover of hospitalization costs was amended. The amendment allows the Minister of Health to enter into agreement with Medical Services (Alberta), Inc., or any insurance organization, company, or society to pay a subsidy not exceeding one-third of the cost of a policy or insurance scheme covering medical, surgical, or obstetric services, provided the cost to the consumer is correspondingly lowered. The interesting feature is that specific reference is made to Medical Services (Alberta), Inc., a prepaid medical plan sponsored by the College of Physicians and Surgeons of the province that presently provides comprehensive coverage for over 100,000 persons. Members choose their own physician, who is paid in accordance with a scale of fees set by the college. Specialist fees are met to a certain extent. The policy is sold basically to groups, members of which are accepted without waiting periods or exclusions. An individual contract is available at a higher rate and with certain waiting periods, but at present this arrangement involves only 5% of the contracts.

It would seem that the government of Alberta regards the physician-sponsored Medical Services, Inc., scheme as a suitable basis for building up a comprehensive province-wide health insurance program with which commercial insurance organizations would have difficulty in competing. The suggestion has been made that the payment of a government subsidy of one-third of the premium would raise the proportion of the population covered for medical care (excluding hospitalization costs that are dealt with by other legislation) from its present figure of 20% to 75%. Although there is some suspicion of offers of government subsidy, in the belief that he who pays the piper will in the end call the tune, the plan has been received favorably by the Alberta medical profession. Their representatives, who should be in the best position to judge, have indicated their willingness to have the plan commence at an early date. Indeed the delay in starting the plan, originally timed for April, 1955, has not been due to any organized medical opposition. On the face of it, the program has the merits of not being compulsory, of making the public pay a substantial share of the cost directly to Medical Services, Inc., and of interfering as little as possible with the doctor-patient relationship.

Traffic in Narcotics.—Last spring a committee of 23 senators was appointed to study the traffic in narcotics. They found that about half the illicit drug traffic in Canada is centered in British Columbia. They estimate that there are about 3,000 drug addicts in Canada, of whom they class 2,300 as criminal addicts. Fortunately, however, there is no teen-age or juvenile addiction problem. Heroin is the commonest drug of addiction, marihuana being rarely used. There had been some talk of establishing narcotics clinics where addicts might legally obtain drugs, but the committee condemns this procedure. It recommends educational programs for adult groups but discourages any activity that might arouse undue curiosity on the part of juveniles or other impressionable persons. It advises greater attention to mental health programs in schools, in the hope of averting situations leading to addiction. It commends the narcotics research in progress in Canada, going so far as to suggest that this country could be a mecca for other research workers. It also praised the administration of the Opium and Narcotics Drug Act by the Division of Narcotic Control in Ottawa. The committee was disturbed at the lack of facilities available in Canada for the treatment of addicts or for their follow-up and urged the immediate provision of such facilities. It wished to see penalties for trafficking stiffened, whether the trafficker is an addict or not. It also proposed stern measures for the addict found in association with juveniles. Although Canada's narcotics problem is relatively small, it requires firm handling now, lest it get out of hand.

ENGLAND

Cost of Prescription.—Addressing a meeting of the Essex branch of the British Medical Association in September, Dr. D. P. Stevenson, deputy secretary of the British Medical Association, said that the amount of medicine prescribed under the National Health Service was being criticized. Although last year the cost of these drugs was almost as much as the cost of the family physician service, he believes that to charge the medical profession with overprescribing is unfair. Physicians are subject to severe disciplinary action for overprescribing, but despite this provision the number of cases in which penalties have been inflicted against physicians has been negligible. Most physicians prescribe only such drugs, in such amounts, as they think their patients need. A physician's primary duty is to his patient, and the factor of cost should not deter him from doing his duty. This was the primary reason for establishing the National Health Service. The critics forget that the cost of drugs has shared in the general inflation. Furthermore, the cost of some of the most effective modern drugs is very high, but, if prescribing such drugs enables an illness to be treated at home and prevents one more patient's being sent to the hospital, a financial saving is gained. The average age of the population is rising, and older people require more frequent treatment and prescribing of medicine than younger persons. It should be remembered that many persons believe that the regular consumption of certain drugs is necessary for their well-being. It would be difficult for physicians to combat this attitude, for the psychological benefits of drugs are now well rooted in the public mind. The critics of the general practitioner ought, in fairness, to put the cost of prescribing against the background of National Health Service costs as a whole, especially the heavy costs of the hospital service.

Hospitals Contributory Schemes.—At the Annual Meeting of the British Hospitals Contributory Schemes Association in September, the Minister of Health showed that, in spite of the welfare state, voluntary contributions to hospitals are necessary. About 3,750,000 contributors are enrolled in these schemes, and,

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The items in these letters are contributed by regular correspondents in the various foreign countries.

if dependents are counted, the population so covered must number more than 10 million. The individual hospital schemes aim at having as their reserve fund an amount equal to at least one year's operating expense, to cover such emergencies as an influenza epidemic. Fifteen schemes have reached or passed that target, and two-thirds of the schemes provide for reserves equal to over 75% of one year's budget, which is a tribute to the strength of the movement. The minister believes that the state should not try to run a social service wholly by itself. The association, in collaboration with the Red Cross and the Women's Voluntary Services, helps to bring the hospitals nearer to the community. There are 1,400 hospitals that have their own League of Friends or similar organization, but about 1,000 have no such attachment.

Alcoholism.—An editorial in the *Guy's Hospital Gazette* issue of June 26, 1955, says that at the casualty department of all hospitals a great deal of medical care, nursing time, and the country's money is spent on the care of the drunk and comatose and the drunk and injured patient. An instance was cited in which one drunken man required the consecutive services of two policemen, two ambulance attendants, one emergency room porter, two nurses, two dressers, one night assistant house surgeon, one receiving-room house physician, one receiving-room house surgeon, one radiographer, and the nursing staff of the ward to which he was assigned overnight. In addition, there was the cost of the x-ray films, dressings, suture materials, and board and lodging. Since this sort of thing goes on in every hospital in the country, the hospital service must spend an appreciable amount of money in this way every year. The editorial urges that an appropriate charge be made in such cases.

New Antibiotics Plant.—A 7 million dollar factory that will save Great Britain $5,600,000 a year was opened by Lord Brabazon and is producing oxytetracycline and tetracycline. Both these drugs were formerly imported from the United States. It is estimated that by supplementing hog feeds with oxytetracycline, farmers can save 14 million dollars a year and 300,000 acres of land can be freed for crop cultivation. Oxytetracycline is beneficial to laying hens and is valuable in the treatment of many animal and plant diseases. The drugs produced by the new factory will be exported to other sterling area countries.

Children Act of 1948.—The Conservative Party Conference, meeting at Bournemouth, urged the government to consider the desirability of amending the Children Act of 1948 and to make it clear beyond doubt that the first duty of local authorities is to keep children within the family and only as a last resort to take them into protective custody. Local authorities should be required to appoint welfare officers to undertake preventive work with problem families and, within limits, be permitted to provide for necessary material needs out of public funds.

ISRAEL

Demographic Problems of Israel.—At the third World Assembly of the Israel Medical Association in August, Prof. R. Baki, director, Central Bureau of Statistics, reported that the recent migratory movement appears to be transient. Emigration is mainly a side-effect of the mass immigration of the period 1948 to 1951. Since 1952 it has been decreasing, and there are signs that a new wave of immigration is on the way. The mass immigration has, however, led to the depletion of the main reservoirs of the Jewish population of four of the five regions, from which until now immigrants have reached Israel in large numbers. In consequence thereof, increased immigration may be expected in the future only if a real change occurs in the attitude towards immigration among the Jews living in America, Western and Northern Europe, South Africa, and Oceania. Immigration from these regions is rather meager. In view of the many difficulties that may arise, it may be expected that in the future natural increases will play an important role in insuring the future of the Israeli population. The future trend of natural increase depends on marriages, fertility, and mortality. With regard to marriages, the conditions prevailing in Israel seem much more favorable than those prevailing in many Jewish communities abroad. Among the Jews of Israel there are practically no mixed marriages. The number of men and women remaining unmarried up to the end of the fertile period is small. With regard to the birth rate, it has been found that the high level of crude rates is influenced largely by the favorable age structure. Despite that, and despite the regression of birth rates in the past few years, the fertility of the Israeli Jewish population appears to be great. This is due mainly to the high fertility of the families of Asiatic and African origin, which supply over half the births in the Jewish population of Israel. With regard to mortality, it has been found that crude death rates are comparatively low, but this is due partly to the favorable age structure. As a consequence of all these factors, the Jewish population of Israel is increasing. Its demographic situation appears to be stronger than that of many communities in the Diaspora.

Schistosomiasis.—At the same meeting Dr. A. Michael Davies, Hadassah Medical School, said that schistosomiasis, one of the most widespread diseases of neighboring countries, was uncommon, although well established, in Palestine before 1948. Mass immigration brought to Israel over 250,000 immigrants from countries of the Mediterranean and Near East where schistosomiasis is endemic. The presence of the appropriate snail vectors led to fear that the disease might become widespread in Israel as well. The main difficulty in determining the extent of schistosomiasis in the immigrants lay in the inefficiency of diagnostic methods based on the recovery of eggs in the stools. After many trials, specific skin and complement fixation tests were devised; enabling the diagnosis to be made in at least 90% of cases. With these tests, a survey was made of over 2,000 immigrants from Iraq, Iran, Yemen, Morocco, and Afghanistan; 34% of the Yemenite, 8.2% of the Iraqui, and 6.8% of the Iranian immigrants were found to be affected, which, taken with smaller groups, gave an infection rate of 53 per thousand immigrants. It was also possible, for the first time, to construct a map of endemic focal areas in Yemen, to discover schistosomiasis exists in Afghanistan too, and to determine a new focus of infection in Iran without leaving Israel. The great increase in irrigation schemes and the building of fish ponds, all of which sooner or later become infested with the vector snails, represents a great potential danger. With the report of an outbreak of schistosomiasis in a small settlement in the Jordan Valley, the fears expressed above have been realized. At least 100 new cases were detected, and there is reason to believe that this area may become an endemic focus of the disease.

Vitamin B_{12} and Macrocytic Anemia.—At the same meeting Prof. M. Rachmilewitz, Hadassah Medical School, Jerusalem, stated that the vitamin B_{12} concentrations of the serum of normal subjects, of patients with macrocytic anemia, and of patients suffering from various other conditions have been determined with use of a mutant strain of Escherichia coli as a test organism. The total concentration in the serum of normal subjects ranged from 200 to 500 micromicrograms per milliliter. Similar values were found in serums from patients suffering from conditions other than macrocytic anemia. The vitamin B_{12} concentration of the serums of patients suffering from pernicious anemia in relapse and of patients with other types of macrocytic anemia were below the normal range and increased with effective treatment. In a series of women found to have anemia after delivery, the anemia was of the dimorphic type; i. e., it was characterized by hypochromia as well as macrocytosis. Accordingly, low serum-iron levels and low concentrations of vitamin B_{12} were found in the serums of these women. The iron deficiency, the vitamin deficiency, and the anemia improved gradually with adequate diet. No improvement occurred if interfering factors, such as infection, were present. Low concentrations of vitamin B_{12} were also found in many pregnant women of low social status and poor nutritional history. High concentrations of the vitamin were usually found in patients with myelocytic leukemia and other neoplastic diseases, such as lymphosarcoma and rapidly spreading carcinomatosis. The high concentrations of vitamin B_{12} in these patients were accompanied by an increased vitamin B_{12}-binding capacity of the serum proteins.

Medical Geography of Israel.—At the same meeting Dr. J. Seide, director, Rothschild Municipal Hospital, Haifa, said that Israel shares with other countries situated on the shores of the Mediterranean their major climatic and biogeographical characteristics. Anthropogeographically, however, she differs from them in many respects, because of mass immigration and the settlement of undeveloped areas. The composition of the population has undergone rapid changes through the influx of human groups with different constitutional, sociologic, and cultural characteristics. This also applies to the landscape, which has changed its aspect as a result of the draining of swamps, planting in the dunes, and bringing the desert areas under cultivation. All these factors exert their influence on the distribution of disease. The limestone formation of hills favors the origin of caves that harbor ticks of the genus Ornithodorus, known to be vectors of relapsing fever. Irrigation canals in citrus groves are infested by snails infected with Schistosoma haematobium or Schistosoma mansoni, and so the planting of new groves may play an important role in the spread of schistosomiasis. The susceptibility of Jews of Oriental origin to hemolytic disease and the cultivation of Vicia fave in many places may be held responsible for the occurrence of favism. Cattle and sheep breeding furthers the spread of brucellosis and leptospirosis in rural districts.

National Insurance Act.—The National Insurance Act, which came into force on April 1, 1954, provides old-age and survivors insurance for the whole population and maternity insurance and work accident insurance for applicable groups. Though health insurance is not included in the act, the medical profession plays an important part in the implementation of the insurance aspects of maternity and work accidents. According to Dr. G. Lothan, director, National Insurance Institute, Jerusalem, a unique feature not to be found in social legislation in other countries is the fact that eligibility for the maternity grant depends on the hospitalization of the mother. This clause has already increased the percentage of hospital births to 95% in the Jewish population. As to maternity allowance, the allocation of the benefit depends on a physician's certificate showing the expected day of birth. The maternity allowance is paid, at earliest, six weeks before this day. The National Insurance Institute may deny the claim for maternity allowance if the claimant did not fulfill the instructions of the institute with regard to medical supervision during her pregnancy and delivery. Physicians play a major part in insurance for work injuries in that they have to certify disability and they give medical care to the injured worker either in hospitals or in clinics of the recognized medical services. They determine the degree of invalidity as members of medical boards and appeal boards and also fulfill a decisive task in medical and vocational rehabilitation. The National Insurance Institute enlists the services of specialists as guides and supervisors of medical care. It works in close cooperation with the Ministry of Health, the Medical Association of Israel, Hadassah Medical School, municipal and private hospitals, and the various sick funds.

NORWAY

Surgery in Norway.—Prof. H. F. Harbitz has published an article on the present status of surgery in Norway *(Nordisk medicin, July 21, 1955)* in which he notes that surgery has made rapid advances since the war and that the status and professional interests of Norwegian surgeons are protected by the Norwegian Surgical Association. Committees from this body and the Norwegian Medical Association issue certificates to specialists in surgery. To become such a specialist, the applicant must be trained in general surgery. Harbitz fears that specializing may cause surgery to be subdivided into narrow fields and may be entered in too early. After all, much progress in surgery has originated from the general surgeon. Almost the entire population of Norway is covered by compulsory health insurance, treatment in public hospitals being free of charge, while extramural treatment requires a small contribution by the patient. The hospitals destroyed in Norway during the war have now been rebuilt or repaired. Even the smaller public hospitals now have a surgical, medical, and radiological section, each with a specialist in charge. The surgical section may include an obstetric ward, or there may be a separate department for obstetrics and gynecology. In the larger hospitals the surgeons enjoy the cooperation of a large number of specialists and can benefit from recent developments in anesthesiology and biochemistry. The increasing use of blood transfusion has led to the organization of a blood bank, which in some places is provided by the Red Cross. Two new research institutes have been established at the Ullevaal Hospital, Oslo. At one of these, the University Institute for Respiratory Physiology, work is being done by Erikson on the relation of spirometric measurements to cardiopulmonary function. At the other, the University Institute for Experimental Medicine, renal function tests are being carried out to determine the clearance for each kidney separately.

Vaccination in the Families of Physicians.—The framers of the smallpox vaccination law recently adopted by the Norwegian Parliament took care to emphasize the importance of vaccination early in life, i. e., under the age of 2 years. No punitive clauses were included in the new law, for it was hoped that educational propaganda would be more effective. Such propaganda is expected of the medical profession, and its efficiency would naturally be enhanced if physicians set a good example for the public by the early vaccination of their own children. In an attempt to find out whether they really do so, Dr. K. H. Torp has carried out an investigation that is reported on in *Tidsskrift for den norske lægeforening* for June 1. Representing the public were 700 children between the ages of 2 and 12 years admitted to the hospital in the period 1952 to 1954. Of these children, 53% had been vaccinated. The medical profession was represented by 150 physicians who had 316 children over the age of 2 years and who were for the most part employed in the two main hospitals in Oslo. Only 56.3% of these children had been vaccinated. Seventy-six physicians had vaccinated all their children before they were 2 years old; 33 had vaccinated some but not all of their children; and the remaining 41 had not vaccinated any of their children. Among the 144 physicians questioned with regard to the vaccination rates of their first-born, second-born, and younger children, it was found that primogeniture seemed to favor vaccination. The vaccination rate was 66.6% for the first-born, 51% for the second-born, and only 38.2% for the later-born children.

Pathogenic Micrococci (Staphylococci).—At the Gade Institute in Bergen studies have been undertaken on pathogenic micrococci (staphylococci) and their carriers. Vogelsang and Kaass of the pediatric clinic in Bergen have taken swabs from the throats and noses of 1,346 patients in this clinic during the period June, 1952, to July, 1953. The mothers of some of these patients and the staff of the clinic served as controls. Pathogenic micrococci were isolated in 73.6%of the patients. This carrier rate had risen to 78% on discharge from hospital—a rise interpreted as showing that hospitalization promoted contamination with pathogenic micrococci. A further argument in the same direction is that the carrier rate increased with the duration of the stay in the hospital. A comparison of the patients, according to whether they were treated with sulfonamides and/or antibiotics, showed no important difference in the carrier rates of the treated and the nontreated patients. At the pediatric clinic it is customary for children less than one year old to be nursed by attendants wearing face masks, the same rule being extended to physicians and visitors. This precaution has not prevented the spread of pathogenic micrococci to infants. In addition to persistent carriers and persistent noncarriers, there are many patients in a children's hospital who behave as intermittent carriers. The number of such intermittent carriers at a given time depends on the contamination of the environment with pathogenic micrococci.

Jobs for Medical Students.—Dr. Kaare Schanke has questioned several medical students about the holiday occupation they undertake. As the rate of pay does much to determine the choice of occupation, students are more likely to work as street car conductors than to work in hospitals. A conductor earns about 1,200 kroner per month, and the pay of a student intern is about half that amount. Furthermore the hours in a hospital are likely to be much longer than those on a street car. Schanke believes this state of affairs to be most unfortunate.

CORRESPONDENCE

TREATMENT OF ACNE VULGARIS

To the Editor:—As a general practitioner of almost 20 years' experience, I strongly object to one statement in the editorial on acne vulgaris by Dr. Stephen Rothman, appearing in the Nov. 12, 1955, issue of THE JOURNAL, page 1124. I completely concur with the scientific discussion but disagree with the next to last sentence. A specialist is not necessary to treat acne vulgaris. The intelligent, alert practitioner can successfully treat 99% of these patients. He is familiar with the patient's environment, food habits, and tension problems; he knows how to administer all of the sulfur medicaments; and, certainly, he can use ultraviolet as effectively as anyone. Only if the case becomes so resistant that sandpaper therapy and x-ray treatments are indicated is it necessary to advise special care. Such cases are usually caused by the patient's traveling from doctor to doctor in his anxiety and impatience to effect an immediate, or miraculous, result. It is not my intention to usurp the place of the specialist but rather to emphasize the fact that the general practitioner, too, has his importance. If he utilizes all his available knowledge, it is not impossible, as the editorial leads one to believe, for the practitioner to successfully treat acne vulgaris. The editorial advises specialist care much too easily, which is detrimental to the general practitioner who, in these modern times, is a capable physician and not just a reference department.

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LUMBAR TRACTION

To the Editor:—It was with more than casual interest that I read the article on lumbar traction therapy by Dr. Bernard D. Judovich in THE JOURNAL, Oct. 8, 1955, page 549. For many years, I have been interested in pelvic traction therapy for low back disorders, and my method was published in *Surgery, Gynecology and Obstetrics,* June, 1954. In his article, Dr. Judovich fails to differentiate as to when he is talking about pelvic traction or referring to leg traction, which makes it difficult to evaluate his statements. My studies fully agree with his statements as to the "ascending force dissipation"; namely, the higher the point of traction desired, the greater the amount of weight that must be placed for traction. Clinically, his statements that only weight applied that exceeds 26% of the body weight exerts any force on the body is not borne out. With the patient in a Trendelenburg position, an average of 20 lb. will be felt by the patient, if applied through a properly designed pelvic belt. The patient's statement that he feels the pull "right where I want it—where my pain is" or, if the weight exceeds the optimum for the individual, he complains of pull in the dorsal region is the clinical evidence I submit. A traction of as low as 25 lb. easily draws the patient to the foot of the bed. What has become of the "surface traction resistance" of the body? Rothenberg and co-workers (*Surg., Gynec. & Obst.* 96:564 [May] 1953) in their painstaking study on the effects of leg traction, were able, with an electromyogram, to show muscular activity, the intensity diminishing to a negligible amount as the muscles of the low back were tested. Of the many colleagues I have interviewed, who are using pelvic traction, and in my own experience, I have not, as yet, had a single patient state that he was suffering from headaches as a result of the Trendelenburg position essential in pelvic traction. I am fully appreciative of the efforts Dr. Judovich expended in his study. In my mind questions arise as to whether the use of two cadavers with irreversible changes and a medical student, who I presume was in good health and not suffering from any low back disorder, can justify the conclusion that a certain method "is of no value in overcoming muscle spasm" and as to the amount of weight needed for traction to be felt at any given point. The results would be invaluable if the effects of pelvic traction could be carried out by the method employed by Rothenberg and co-workers who use roentgenograms, calipers during surgery, and electromyogram measurements on patients while the traction was in effect on patients with herniated disk. Unfortunately, it has become axiomatic when we cannot understand the manner in which a modality effects its benefits to ascribe its virtues in that it "confines the patient to bed." In my experience, leg traction, which is far more confining to bed than pelvic traction, has proved worthless; keeping the patient in bed without an appliance has made it necessary to use not only sedatives but, at times, narcotics. Does this sound as if the virtues of pelvic traction are due to confining the patient in bed? It is encouraging to note that, in recent years, more detailed study is being made of the conservative treatment of low back syndrome. In order that results that are being reported may be evaluated, the authors should strive to be more distinct in the delineation of the various methods they are condemning or approving. In that way alone can we verify each other's work and progress be achieved in a painful disorder.

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SURPLUS FOODS

To the Editor:—The doctors of the United States may not be aware of what food is available to nonprofit hospitals, lunch programs, and the needy in their districts. I have received a letter from the assistant secretary of the Department of Agriculture, Washington, D. C., which reads in part as follows: "This is in reply to your letter inquiring about surplus foods that will be available for eligible institutions, including hospitals. Foods acquired by the Department under its price support and surplus removal programs may be made available to nonprofit school lunch programs, charitable institutions, including nonprofit hospitals, and to families and persons determined by appropriate state and local public welfare agencies to be in need. The foods currently available nationally include butter, cheese, nonfat dry milk solids, dried beans, rice, and shortening. Eggs, meats, and fruit juices are not available." Information concerning the availability of these foods in various territories may be obtained from Mr. Earl L. Butz, Assistant Secretary, Department of Agriculture, Washington, D. C.

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ITALIAN PHYSICIANS

To the Editor:—I am soliciting the following information on the behalf of Dr. Bruno Manzone of the Instituto Superiore de Sanita, Rome, Italy: (1) names of Italian physicians who have either studied medicine abroad and practiced in the United States or are of Italian descent and who have studied medicine here in the United States and are here practicing and who have contributed effectively to public health or medical practice; (2) those who are or have been associated with medical institutes, hospitals, or clinics dealing primarily with an Italian clientele; (3) biographic, bibliographic, or historical materials that bear upon the contributions of such Italian physicians and most particularly any published material that in any way ligates Italian medicine with American medicine; and (4) information on the organization of Italian medical societies or associations currently existing or of time past.

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MISCELLANY

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LET BRITISH BABIES HAVE TWO HEADS!

Richard Gordon

So we are to have a new classification of pathology.

"Now, my boy, tell the examining board what you make of that specimen."

"Cholangitis with gall-stones, sir."

"Excellent! Would you say it was a disease of public interest?"

"No, sir. Unless it happened to a Cabinet Minister or someone else important."

"Quite so, quite so. A sniffle in a princess would go on the front page, of course. How about this case here?"

"Congenital generalized hypertrichosis. The poor child was born covered with hair. Very rare."

"Correct. Of public importance?"

"Oh yes, sir. 'Ape Boy Born In Peckham——' "

"Good, my lad, you've passed."

The notion that anybody's disease—short of rampaging smallpox—is of legitimate interest to the rest of the public seems as revolutionary an idea to the medical profession as the introduction of aseptic surgery. But the doctors have admitted the principle, and now the B. M. A. meets Fleet Street—apparently only to prevent such embarrassments as Sir Charles Quinsey's discovery, when looking through a laryngoscope down the throat of a film star, that a man from the evening papers is squinting over his shoulder.

Even a well-meaning P. R. O. appointed by the National Health Service to each hospital wouldn't much alter the clinical trend of the Sunday papers. I know this because I once worked on a medical journal sufficiently enlightened to hold a layman's Press conference every week. This was to indicate articles of public importance, and so further health education, self-knowledge, public health, personal hygiene, and other noble ideals. The reporters were always polite eager young men, who put out their cigarettes and kept calling everyone doctor. But the conferences were never a success.

"A most interesting article this week on hookworm," I would begin. "This is one of the most widespread and important global infections, the physical and economic consequences of which may——"

"Excuse me, doctor, but what's this paragraph about a girl thinking she was a man?"

"Oh, very minor, a dull hallucination in one single case. Now, this paper proving that if everyone ate, drank, and smoked less they'd be much healthier and——"

"Doctor, what are these *monsters?*"

"Monsters? Merely a technical term for a malformed fœtus. Of no importance to the public. The Report on page five of the World Health Organization——"

Next Sunday I would see SHE THOUGHT SHE COULD BE A FATHER and BRITISH MOTHERS HAVE MONSTERS, all quoting our journal. I wondered if the painstaking authors of the long scientific papers knew that their most enthusiastic readers were not the practising doctors—to most of whom the greatest value of a medical journal is reminding them it's Friday again by thumping on to the doormat—but the worried men in newspaper offices who read the whole issue through the night before publication, as earnestly as students before their scholarships.

The newspapers' complaint that they can never extract information from doctors about their cases would be utterly incomprehensible to the gentleman who taught me surgery, Old Blood and Thunder. No reporter would have dared to question him in the hospital corridors—no more would he have buttonholed the Lord Chief Justice and asked what he gave for the prisoner's chances. Blood and Thunder allowed that *The Times* could give politely woolly reports of the notable invalids, but mentioning someone's clinical state in the Press struck him as no less outrageous than publishing the full postmortem report in the middle of a bishop's obituary.

Blood and Thunder would never tell the newspapers anything; but he never told his patients anything either. The worried supplication "What's *wrong* with me, doctor?" brought the reply, if he was in a good mood, "It's only a lot of long Latin names, my dear fellow, and you wouldn't understand a word of it," or "It's none of your damn business," if he wasn't.

The time thus saved in his professional lifetime undoubtedly enabled him to remove several hundred more stomachs. This suggests that the P. R. O. is wanted *inside* the hospital, to help the overworked medical staff.

The public to-day aren't satisfied with the simple admission "You've got an ulcer" or "We're going to take out your thyroid." They want half an hour's lecture on the type of ulcer, the x-ray appearances, and the prognosis; or they tell the surgeon he'll catch it if he so much as nips one of their recurrent laryngeal nerves. The trouble is, they've been reading the newspapers.

MEDICAL FILM REVIEWS

Safe Tuberculosis Nursing: 16 mm., black and white, sound, showing time 21 minutes. Produced in 1950 by and procurable on loan from Veterans Administration, Central Office Film Library, Vermont and H streets N.W., Washington 25, D. C.

This film depicts the strict precautionary techniques that are carried out in the Veterans Administration tuberculosis units. Its theme is that, by following the suggested procedures, all personnel in the unit, as well as patients and visitors, are given protection and that tuberculosis nursing can be safe. The film is centered around the daily routine of an attractive young nurse and covers the gown room, gown, cap, mask technique, handwashing, morning care, thermometer technique, serving of food, dishwashing, transportation of patients, instructions to visitors, and the nurses' responsibility in teaching and supervising other staff members. The precautions necessary in cleaning the rooms are brought out, as are the procedures necessary for the safety of librarians, occupational therapists, and other personnel. Environmental requirements necessary for carrying out proper protective measures are given attention. While the film deals almost exclusively with mechanical aseptic procedures, it also creates interest in the equally important areas of health teaching, mental hygiene, and the social and financial aspects that are all necessary in a tuberculosis control program. All tuberculosis hospitals will find the film of value whether or not they observe the strict aseptic techniques recommended by the Veterans Administration. The film will be of interest and should be shown (perhaps twice) to every person working in a tuberculosis hospital. It fortifies teaching and is good for review as well as orientation. Most hospitals will want to keep the film (perhaps two weeks) for consideration of time schedules of various departments. It is invaluable as a teaching aid for affiliating students and equally important for student nurses in general hospitals not having a tuberculosis affiliation. Graduate nurses in general hospitals, university schools of nursing, and medical schools should find the film of value. The narration is excellent.

Pruritus Ani: 16 mm., color, silent, showing time 34 minutes. Prepared by Manuel G. Spiesman, M.D., and Louis Malow, M.D., Chicago Medical School. Produced in 1955 by and procurable on loan (service charge $5) from Mervin LaRue, Inc., 159 E. Chicago Ave., Chicago 11.

This film gives the authors' simplified classifications of pruritus ani and the office and home treatments of each type. Color photographs show the various pruritides and the application of treatment for each. The clover leaf operation for the intractable type is shown in detail. This operation, which is a modification of the undercutting operation described by Sir Charles Bell many years ago, is very well demonstrated. This film presents a practical classification of anal pruritus; however, the material on treatment of amebiasis is extraneous. The dermatologist could make a valuable contribution to this presentation. The photography is good. This film is recommended for house officers and general practitioners with a word of caution as to the use of cortisone as well as of the undercutting operation.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Liver Disease in Sickle Cell Anemia: A Correlation of Clinical, Biochemical, Histologic and Histochemical Observations. A. Bogoch, W. G. B. Casselman, M. P. Margolies and H. L. Bockus. Am. J. Med. **19**:583-609 (Oct.) 1955 [New York].

Recent studies of the liver in sickle cell anemia reveal a high incidence of hepatic damage and a variety of causes contributing to jaundice and hepatomegaly in this disorder. Clinical and biochemical studies and histological and histochemical observations on liver tissue obtained by needle biopsy were made on four patients with sickle cell anemia. There was one instance of hepatitis, one of hemochromatosis, and two of portal cirrhosis. Serial liver function tests were performed in each case. Hypoalbuminemia and hyperglobulinemia, with elevation of the gamma fraction and a decrease in the alpha$_1$ globulin values, were the most consistent serum protein alterations. The finding of elevated serum amylase and lipase values in this disease is of interest in view of its abdominal manifestations that may be confused with acute primary pancreatitis. Hepatitis in one patient was thought to be a manifestation of the sickle cell disease itself. Focal parenchymal lesions were found in the liver of this patient during the recovery stage and in the liver specimens of the other three patients. Ischemia, the result of sinusoidal obstruction by red blood cell clumps, appears to be the most likely cause. Some of the parenchymal changes may be due to a "hepatotoxin" associated with sickle cell crises. It is possible that some of the necrotic lesions, when prominent and repeated, may be followed by cirrhosis as another hepatic manifestation of sickle cell anemia. The precise role of iron-containing pigment in the pathogenesis of the cirrhosis in one of the four patients is in doubt. Hemochromatosis in one patient was unquestionably related to multiple blood transfusions. The possibility of hepatic damage, consequent to multiple blood transfusions given to maintain hemoglobin levels in this disease, deserves consideration. Histochemical studies revealed no or only mere traces of lipids in the cytoplasm of the parenchymal cells. This is of interest in view of the anemia extant in these patients who were fasting at the time of biopsy.

Cobalt Therapy in Anemia. J. M. Hill, J. LaJous and F. J. Sebastian. Texas J. Med. **51**:686-690 (Oct.) 1955 [Austin, Texas].

The authors used cobalt or cobalt and iron preparations in 115 patients with various forms of anemia over a period of eight years. At first they used cobalt only in cases of anemia that were refractory to other treatments, such as in those associated with chronic infection, especially chronic arthritis, and the hypochromic anemias not responding to iron. Cobalt chloride usually was prepared to provide from 20 to 80 mg. of the salt per teaspoonful. Dosage in adults was kept around 50 mg. daily and in children from 10 to 30 mg. daily. The solution was added to cold water or milk and usually taken after meals. Later, larger doses ranging from 100 to 160 mg. daily were employed, but with these nausea was often a problem. When enteric cobalt-iron combinations became available, these were employed, except in patients in whom iron overload was evident (for example, following many transfusions) or in whom bone marrow iron stores were maximal. Enteric coated cobalt chloride tablets in 100 mg. sizes, both with iron (200 mg.) and without it, were also made available to the authors for these unusual cases. Although nausea, or more rarely vomiting, resulted from elevated dosage or prolonged therapy, it was found that, after omission of the drug for an interval of a few weeks, it was possible to resume the therapy. Cobalt was used in the following heterogenous group of anemias: those due to infection, blood loss anemia, iron deficiency anemia, azotemia, anemia associated with arthritis, nutritional anemia of infants and children, hypoplastic and aplastic anemias, hemolytic anemias of congenital and acquired types, hereditary leptocytosis (Mediterranean anemia), and, finally, anemia associated with other blood dyscrasias and malignant neoplasms such as the various leukemias, multiple myeloma, Hodgkin's disease, and reticulum sarcoma. No apparent benefit was derived from cobalt therapy in acute aplastic anemia, leukemia, Hodgkin's disease, and multiple myeloma. Results were doubtful in hereditary leptocytosis and most of the hypoplastic anemias. Cobalt therapy produced the best results in the anemias associated with low grade infection, arthritis, blood loss, and iron deficiency and in hemolytic anemia. Particularly noteworthy was the effect of cobalt therapy in 18 pregnant women with anemia, most of whom had not responded adequately to prior iron therapy. In comparison with a control group of 63 patients receiving iron alone, the cobalt-iron group of patients gained an average of 1.73 gm. of hemoglobin per 100 cc. of blood, while those receiving iron alone showed an average gain of 0.73 gm. per 100 cc. It is well established that cobalt has a powerful erythropoietic effect with an increase in erythrocyte precursors in the bone marrow. The recognition of the role of cobalt in normal metabolism as part of the vitamin B_{12} molecule should remove prejudice against this agent. The direct stimulating effect on erythropoiesis considered in this paper is obviously by a different mechanism.

Pernicious Anemia with the Absence of Typical Anemia. Z. Plotkin. Arizona Med. **12**:458-466 (Oct.) 1955 [Phoenix, Ariz.].

The author calls attention to the fact that, since the advent of mass consumption of vitamins, especially folic acid and vitamin B_{12}, and of certain antibiotics, patients are likely to present themselves with neuropathy and with achlorhydria without the typical hematological picture of pernicious anemia. There is danger that these cases will not be correctly diagnosed and properly treated, because of the absence of the characteristic blood and bone marrow findings. The daily oral intake of 5 mg. of folic acid produces a hematological remission, while the spinal cord lesions are aggravated in pernicious anemia. It was definitely shown that folic acid requires no intrinsic factor and has a direct action upon the bone marrow, converting a megaloblastic into a normoblastic bone marrow. Vitamin B_{12} plus intrinsic factor, incorporated into many available vitamin preparations, when taken orally tends to suppress megaloblastic erythropoiesis while being insufficient to cause amelioration of the progression of posterolateral cord changes for which massive parenteral medication is required. The mechanism of action of penicillin or Tetracyn is not as yet confirmed with certainty, but apparently they effect increased intestinal absorption of vitamin B_{12} by increasing its biosynthesis. In the present era of vitamins and antibiotics, physicians may observe pernicious anemia without anemia. The author presents the histories of two patients to illustrate this problem of the delay of proper diagnosis and treatment in the absence of characteristic hematological findings while serious neurological lesions were progressing.

Tetracycline Therapy of Pneumonia. F. Bakir, S. Katz and G. McCormick. South. M. J. **48**:1031-1038 (Oct.) 1955 [Birmingham, Ala.].

Tetracycline was given to 58 patients with various types of acute bacterial pneumonia. The patients were acutely ill and had all the clinical characteristics and roentgen manifestations

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The place of publication of the periodicals appears in brackets preceding each abstract.

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of acute pneumonia. The group included 36 males and 22 females ranging in age from 13 to 79 years. Thirty-nine of the patients were alcoholics. Four had asthma, two had bronchiectasis, one had congestive heart failure, one had an esophageal diverticulum with recurrent pulmonary infection, and two had inactive tuberculosis. Pneumococci were isolated from the sputums of 24 patients. In two patients pure cultures of beta-hemolytic streptococci were found and in two others Klebsiella pneumoniae was the etiological agent. Hemophilus influenzae was the responsible organism in one patient. Sputum cultures in 22 patients showed no clear-cut predominating organism, but it is probable that most, if not all, of these patients had lobar pneumococcic pneumonia. Sputum cultures in seven patients showed coagulase-positive Micrococcus pyogenes var. aureus as the dominant organism. Tetracycline was given by mouth in doses of 0.5 or 0.25 gm. every six hours. One patient received 0.75 gm. every six hours. The results of tetracycline therapy were excellent in 25 patients, in 24 the response was good but delayed, in 2 the response was slow, 4 patients died, and complications (empyema or pulmonary abscess) developed in 3 patients. On the basis of their experience with penicillin in the treatment of lobar pneumonia, the authors conclude that tetracycline is somewhat inferior to penicillin. In mild and moderately severe pneumonia in which the organism is sensitive to tetracycline, a favorable response can be expected when 0.5 gm. is given every six hours. In patients with mild bacterial pneumonia in whom the organisms are sensitive to tetracycline, 0.25 gm. every six hours is effective. Tetracycline appears to be somewhat more effective than its analogues, oxytetracycline and chlortetracycline, on the basis of tolerance, plasma levels, and concentration in body fluids. This study suggests that it is merely equal to its analogues in therapeutic effectiveness in all forms of acute bacterial pneumonia.

Lung Cancer Death Rates Among Non-Smokers and Pipe and Cigarette Smokers: An Evaluation in Relation to Air Pollution by Benzpyrene and Other Substances. P. Stocks and J. M. Campbell. Brit. M. J. 2:923-929 (Oct. 15) 1955 [London, England].

As a result of two years of study of the environmental histories of patients with cancer and persons without cancer in Great Britain, death rates from cancer of the lung and bronchus were calculated among men of different smoking habits living in a rural area of Wales, in a mixed area of urban and rural districts around Chester and Wrexham, and in Liverpool county borough. The death rates were compared with measurements of benzpyrene and other substances present in the air at various places within those areas. Results showed that the rural death rate increased proportionally to the number of cigarettes smoked per week and that pipe smokers as a group ranked with smokers of about 25 cigarettes a week. Liverpool rates exceeded the rural rates in every smoking category, but the urban/rural ratio fell progressively from about nine to one among nonsmokers to a small value approaching unity among heavy cigarette smokers. The absolute urban excess was much the same in each smoking group, suggesting that an urban factor was added to the effects of smoking. Differences in smoking habits of the populations can account for only a small fraction of the contrast in total rates, and it is estimated that in Liverpool about half the deaths of men between the ages of 45 and 74 years from cancer of the lung arise from cigarette smoking and about three-quarters of the remaining half are caused by a factor that is only slightly present in the rural area. The chemical investigation of the concentration of smoke and of the carcinogen 3,4-benzpyrene, other polycyclic hydrocarbons, and sulfur dioxide in the air revealed that these concentrations rise with increasing urbanization, the benzpyrene figure in Liverpool being 8 to 11 times as great as in the rural localities examined. This ratio corresponds with the estimated mortality ratio among nonsmokers living in those areas. When the death rates were compared with calculated total intake, by different categories of smokers in the urban, mixed, and rural areas, of benzpyrene derived from air according to certain assumptions, plus that derived from the number of cigarettes smoked, the degree of correspondence was such as to suggest that benzpyrene might be the one agent involved. Although the authors' evaluation was based on observations made in the course of only two years instead of on five-year death rates, this preliminary report seems to be justified because the two-year rates make the supposition tenable that benzpyrene plays a dual part through cigarettes and air pollution. Such a working hypothesis may assist research work in this field whether or not it is finally substantiated.

Factors Influencing Relapse in Pulmonary Tuberculosis: A Statistical Analysis of 1,259 Patients Followed from Eleven Months to Six Years After Discharge. T. Oyama. Am. Rev. Tuberc. 72:613-632 (Oct.) 1955 [New York].

This study was undertaken to evaluate the factors that play a part in relapse of pulmonary tuberculosis, understanding of these factors being important in efforts to reduce the frequency of reactivations of the tuberculous process. The analysis is based on the records of 2,571 patients who were discharged from Glen Lake Sanatorium during the period from Jan. 1, 1948, through Dec. 31, 1953. Of this number, 1,534 patients were found to have an uncomplicated adult type of pulmonary tuberculosis that could be adequately evaluated. Sufficient follow-up reports were obtained in 1,259 patients, and these patients were *observed for periods ranging from 11 months to six years.* The cumulative incidence of reactivation during the period of observation following discharge was 28.5%. There were no significant correlations between the incidence of relapse and the following factors: (1) right-sided or left-sided lesions in patients in whom the disease was unilateral, (2) duration of disease, (3) length of hospitalization, (4) duration of bed rest alone, and (5) particular chemotherapeutic regimens when used alone. The factors of relapse in pulmonary tuberculosis are so complicated that one factor may be analyzed alone without finding any apparent association with the rate of reactivation, but, if combined with another factor, it may be found to have a significant correlation with the incidence of relapse. The post-treatment relapse rate for pulmonary tuberculosis was definitely higher in males than in females. If the age was also taken into account, however, it was found that there were no important differences in relapse rates for the two sexes in certain age groups, namely, 10 to 29 years of age and in patients more than 70 years of age. Discussing possible explanations for the greater tendency to relapse of pulmonary tuberculosis in patients in the older age groups, the author points out that these patients had less adequate treatment during the acute phases of tuberculosis. Furthermore, their age would often make resectional surgery inadvisable. The so-called latent tuberculosis in the older age groups should receive more attention because of the great potentiality for progression. The type of treatment appeared to influence significantly the incidence of reactivation. Prolonged chemotherapy for one year or more was remarkably effective in preventing relapse, as was lung resection combined with chemotherapy. Resection plus chemotherapy was superior to chemotherapy alone in patients with far advanced tuberculosis, but this was not the case in patients with moderately advanced tuberculosis.

Relapse of Pulmonary Tuberculosis After Five Years or More of Arrest. R. S. Mitchell. New England J. Med. 253:640-643 (Oct. 13) 1955 [Boston].

From information accumulating about the pattern of primary relapse after the attainment of arrest of pulmonary tuberculosis, it appears that the vast majority of such relapses occur within five years of attainment of arrest. This report is concerned with relapses that occur after five years or later. Between 1948 and 1954 various retrospective studies of patients with pulmonary tuberculosis were made at Trudeau Sanatorium. All patients with active minimal disease admitted to the sanatorium between 1927 and 1946, all patients with active, advanced disease admitted between 1930 and 1939, all patients with phrenic-nerve interruption admitted between 1926 and 1946, and all patients with artificial pneumothorax initiated between 1930 and 1939 were included. Among over 3,600 patients there were 115 patients originally classified as having primary relapse five years or more after attainment of arrest with whom contact had been maintained. Between 1951 and 1954 a redoubled effort was *made to obtain every available chest roentgenogram and all* clinical data from physicians, hospitals, health departments, and the patients themselves. All 115 patients answered special questionnaires. Relapse is defined as bacteriological or radiological evidence (or both) of active tuberculosis somewhere in the body occurring after arrest. The data obtained on the 115 patients suggested that at least 48 had evidence of chronic active disease during part or all of the time between arrest and relapse. In 28 other patients there was suggestive clinical evidence of chronic active disease, and in 8 others roentgenograms and other clinical data revealed that the time elapsed from arrest to reactivation was actually less than five years. There were therefore only 31 of the 115 patients who, on close inspection, actually met all the requirements of this study. The new disease at the time of relapse was found at or very near a preexisting focus in 24 of the 31 patients. It is of particular interest that 8 of the patients were physicians and 4 were nurses, 11 of whom resumed their former work with some probability of occupational exposure. A pathologist frequently exposed occupationally to tuberculous tissue containing drug-resistant organisms recently had a reactivation of his pulmonary tuberculosis at the site of his preexisting disease. His originally minimal lesion had been inactive for over five years, and he had never taken streptomycin, aminosalicylic acid, or isoniazid. Tubercle bacilli isolated from his sputum before any chemotherapy was begun for the relapse were resistant to both streptomycin and aminosalicylic acid and susceptible to isoniazid. Several similar cases are mentioned, and it is suggested that reactivation at or near the site of a preexisting focus can no longer be regarded as conclusive proof of endogenous reinfection. Furthermore, since there is some suggestion that Mycobacterium tuberculosis tends to die out in closed necrotic foci with or without chemotherapy as time goes on, it is possible that reinfection after five years or more of clinical, bacteriological, and roentgenographic control of disease will be exogenous rather than endogenous.

Pulmonary Lesions in "Rheumatoid Disease" with Remarks on Diffuse Interstitial Pulmonary Fibrosis. E. H. Rubin. Am. J. Med. 19:569-582 (Oct.) 1955 [New York].

"Rheumatoid disease" is a more descriptive term than rheumatoid arthritis, since it expresses a widespread process involving not only the locomotor system but also other parts of the body. With increasing use of routine chest roentgenography, changes are being discovered in the lungs of patients with rheumatoid disease indicating that these organs are involved quite frequently and early in the course of the disease. Within a space of two months the author had occasion to observe three patients with acute rheumatoid disease with characteristic articular manifestations in whom the chest x-ray findings were in keeping with a systemic disturbance. In two cases it was possible to obtain lung biopsies for histological study. The histories of these patients are reported. The pulmonary lesions may simulate acute atypical pneumonia, acute rheumatic pneumonia, or acute, diffuse interstitial pulmonary fibrosis. In some cases these several manifestations represent one and the same disease. Recently the author has observed a fourth patient with rheumatoid disease and diffuse interstitial pulmonary fibrosis. This 65-year-old woman had a history of concurrent onset of joint pains, fever, and acute respiratory symptoms diagnosed as pneumonia in another hospital. The disease was of eight months' duration. The chest x-rays and lung biopsy specimen revealed a picture similar to that noted in the other cases cited.

Staphylococcal Enteritis: Two Associated Fatal Cases. A. S. Todd and P. O. D. Hopps. Lancet 2:749-750 (Oct. 8) 1955 [London, England].

The histories of two patients with micrococcic (staphylococcic) enteritis are presented. Both fatal infections occurred in the same surgical ward, within a week, and were infections by the same strain of organism. The first of the two patients had been prepared for gastrectomy by injections of penicillin and streptomycin, and after a successful partial gastrectomy penicillin and streptomycin were given by mouth. Three days later a severe diarrhea began, and bacteriological examinations of the stools showed that gram-positive cocci had taken the place of the usual intestinal flora. Culture of a stool produced a profuse growth of Micrococcus (Staphylococcus) pyogenes sensitive to chloramphenicol, bacitracin, and erythromycin but insensitive to penicillin, streptomycin, chlortetracycline (Aureomycin), oxytetracycline (Terramycin), and tetracycline. In view of this a course of oral and intravenous administration of chloramphenicol was started, but the patient died on the fourth day of illness, six days after the operation. Autopsy revealed that the gastrectomy had healed satisfactorily, but the small intestine contained yellowish fluid in which floated shreds of membrane. Similar shreds adhered in a few places to the mucosa. Almost the whole of the small intestine appeared denuded of the superficial layers of mucosa. The large intestine contained an inspissated mass of the same yellow shreds, resembling caseous material. Histological studies revealed a pseudomembrane. The second patient had been treated at home for several weeks for a condition labeled Behçet's type of erythema multiforme. Unknown amounts of chloramphenicol and chlortetracycline had been given locally and systemically. At the hospital he was treated with oxytetracycline, and his lesions improved. He remained well until two days after the death of the first patient, when diarrhea developed, which resulted in death. Stool cultures and autopsy findings in the small and large intestine were identical with those in the first patient. The role of antibiotic treatment and resistant micrococci (staphylococci) in the causation of pseudomembranous enteritis is now firmly established. Apparently the antibiotic must fulfill three conditions before it can cause enteritis: 1. It must be ineffective against the infecting Micrococcus (Staphylococcus). 2. It must be lethal to the normal intestinal flora. 3. It must be given by mouth. These conditions are fulfilled when patients are treated with broad-spectrum antibiotics (or combined penicillin and streptomycin) in wards heavily infected with micrococci (staphylococci). They were fulfilled in the present cases.

Anaphylactic Shock After Penicillin Injection: Three Fatal Cases. A. H. Andersen. Ugesk. læger 117:1237-1240 (Sept. 22) 1955 (In Danish) [Copenhagen, Denmark].

The third of three cases in which the penicillin preparation is believed to have caused fatal anaphylactic shock in an asthma patient illustrates the danger of injecting penicillin when the patient has previously shown intolerance to the substance. The cases all support the assumption that compound penicillin preparations are more toxic than benzyl penicillin. The danger that penicillin injection may cause death is slight, but the possibility of anaphylactic shock must be included in one's considerations. Penicillin should be given only when clearly indicated. Before injection the patient must be asked whether penicillin has previously been given and, if so, whether it was tolerated without side-effects. If there were earlier symptoms of allergy, the drug should not be given.

Sarcoma of Thyroid Gland. A. S. Novaes. Rev. paulista med. 47:70-82 (July) 1955 (In Portuguese) [São Paulo, Brazil].

Sarcoma of the thyroid gland is more frequent than is believed. It is highly malignant, grows rapidly, and gives early metastases to the lung, bones, liver, kidneys, pleura, brain, and regional and distant lymph nodes. It may develop simultaneously with a rapidly growing thyroid nodule or in an apparently normal thyroid gland. In the pretumor stage the firmness of the thyroid is increased and the mobility of the structure disappears. Symptoms of hyperthyroidism do not appear. The early symptoms are acute pain, radiating to the lateral shoulder and arm, dyspnea, and many other grave respiratory, nervous, and cardiovascular disorders. The tumor rapidly causes infiltration of the trachea and compression of the larynx and of important nerves and other structures. An early diagnosis is difficult. The test of radioactive iodine that measures the function of the thyroid nodules in comparison with that of perinodular normal tissues for emanation of radiations is of value. Prevention of thyroid sarcoma calls for systematic resection of all thyroid nodules, single or multiple. The curative treatment varies with the stage of the disease from total lobectomy, with regional lymph node dissection and resection of certain lateral veins, to total thyroidectomy, with ample regional lymph node dissection, resection of certain lateral veins and of an ample segment of the internal jugular vein, dissection of one of the recurrent nerves, and in certain cases parathyroidectomy. When tumor compression of the larynx is present, the treatment is palliative only, consisting of removal of tumor tissues, as ample as possible, or a tracheotomy. Tracheotomy is often indicated as an emergency. Local implantation of radium, roentgen therapy, and use of radioactive iodine are of no value in the advanced stage of the disease. The author reports on two women and a man between the ages of 50 and 73 first seen when their disease was in the inoperable stage. The tumor developed in the left lobe of the thyroid gland in all three patients. One of the patients had a nodular goiter, prior to the development of the sarcoma. The nodule had been inactive all through her life and suddenly became malignant shortly before the first consultation. In the other two patients, sarcoma developed in an apparently normal thyroid gland. In all cases the sarcoma was of the polymorphocellular type. The operation was only palliative. The patients died within two months after the operation. A patient died two weeks after the operation as the result of an acute hemorrhage from the operative wound. The other patient died two weeks after an emergency tracheotomy complicated by hemorrhage.

Determination of Protein-Bound Iodine in Serum in Evaluation of Thyroid Function. B. Skanse. Nord. med. 54:1419-1423 (Sept. 15) 1955 (In Swedish) [Stockholm, Sweden].

Determination of the protein-bound iodine in the serum by Riggs and Man's method in 192 patients and by a modification of Barker and Humphrey's method in 216 patients gave a correct picture of the thyroid function in about 92% and 94% of the cases respectively. Barker and Humphrey's simpler alkali ashing method is preferred for clinical use. Determination of the protein-bound iodine in the serum, properly applied, constitutes a valuable diagnostic method in cases where it is difficult to estimate the function of the thyroid. The procedure cannot be used to evaluate the thyroid activity when the patient has been given iodine either in the form of iodides or organically bound iodine. Analysis in 18 patients with hypothyroidism indicates that determination of the protein-bound iodine in the serum before and after administration of thyrotropic hormone is useful in the differential diagnosis between primary and secondary hypothyroidism.

Intramuscular Trypsin in the Treatment of Chronic Thrombophlebitis. C. J. Wildman. Angiology 6:473-481 (Oct.) 1955 [Baltimore].

Parenzyme intramuscular trypsin, a suspension of crystalline trypsin in sesame oil, each cubic centimeter containing 5 mg. of the active principle, was given to 10 selected patients with chronic thrombophlebitis. The patients were divided into three groups. The two patients in the first group were hospitalized and received 1 cc. of the drug every 12 hours for 10 days, 1 cc. twice a week for two weeks, and 1 cc. once a week for four weeks. There were four outpatients in the second group who received 1 cc. twice a week for two weeks, 1 cc. once a week for four weeks, and 0.5 cc. once a week for two weeks. The four patients in the third group were given 1 cc. once a week for two weeks and 0.5 cc. once a week for six weeks. All patients of the first and second groups showed impressive objective and subjective improvement; the response of the hospitalized patients was more rapid than that of the outpatients. Edema and induration were eliminated; healing of stasis ulcers was promoted. There was a tendency to restore the normal texture and color of the skin affected by postphlebitic pigmentation and eczema. The four patients in the third group showed an inadequate therapeutic response and after eight weeks of treatment did not exhibit any signs of substantial regression of the existing pathological condition. After eight weeks of initial therapy, treatment was suspended in all 10 patients for one month. During this interval, every patient was examined once a week. After about three weeks exacerbation of all symptoms invariably occurred. Resumption of treatment with 0.5 cc. of the trypsin suspension once a week tended to halt adequately the exacerbation and to maintain the level of improvement attained after the initial intensive course of therapy in the six patients originally treated. The four patients in the third group were finally put on the therapeutic regimen of the second group and made the same satisfactory progress toward subsidence of edema, induration, and ulceration. The results suggest that parenterally given trypsin has a local diuretic effect on the edema and induration associated with chronic venous insufficiency and on the collateral edema and hyperemia associated with acute inflammatory conditions.

Long-Term Treatment of Some Arteriopathies with Tromexan. C. M. Castro and G. Stritzler. Angiology 6:442-461 (Oct.) 1955 [Baltimore].

Ethyl biscoumacetate (Tromexan Ethyl Acetate) was given to 26 men and 3 women between the ages of 32 and 75 years, of whom 21 had arteriosclerosis obliterans, 5 thromboangiitis obliterans (Buerger's disease), and 3 Leriche's syndrome. The starting dose of the drug was 1,200 mg. (4 tablets) or 600 mg. (2 tablets), according to the patient's age and the condition of the capillary wall. This was followed by a maintenance dose of 150 mg. (½ tablet) every 12 hours or 75 mg. (¼ tablet) at the same interval according to the modifications of the prothrombin time, determined by Quick's test before the institution of the treatment and after that every eight days, or every three or four days if it fell to less than 30%. When the activity of the prothrombin time was lowered to a dangerous degree, administration of ethyl biscoumacetate was suspended and vitamin C was administered intravenously in a dose of 500 or 1,000 mg.; in addition, rutin was given orally in a dose of 200 mg. Only occasionally, if hemorrhage was copious, was 50 mg. of synthetic vitamin K administered intravenously every four hours. The duration of the treatment varied from 20 to 480 days. Results showed that long-term treatment with ethyl biscoumacetate is effective for patients with arteriosclerosis obliterans, thromboangiitis obliterans, and Leriche's syndrome. The drug promoted the healing of ulcers of the leg in five (80%) of six patients. Ethyl biscoumacetate apparently prevented serious complications that secondary thrombosis of the collateral network causes in patients with Leriche's syndrome due to trauma. Sixteen patients with arteriosclerosis obliterans, 4 patients with thromboangiitis obliterans, and 2 patients with Leriche's syndrome had paresthesias, which were improved or entirely disappeared in 14, 3, and 2 patients respectively. Intermittent claudication was present in 18 patients with arteriosclerosis obliterans, 5 patients with thromboangiitis obliterans, and 2 patients with Leriche's syndrome; it was improved or disappeared completely in 13, 4, and 2 patients respectively. Pain during rest was improved in the three types of patients 100, 50, and 100% respectively. Improvement of objective symptoms occurred in the three types of patients. Pulsation reappeared in 38 and 60%, respectively, in the first two types; oscillations improved or reappeared in 48, 40, and 33% respectively; and skin temperature improved or became normal in 61, 33, and 33% respectively. These results may be explained by the prevention of new thromboses and by the fibrinolytic, antispasmodic, eutrophic, and probably anti-infectious action of ethyl biscoumacetate.

External Electric Stimulation of the Heart in Cardiac Arrest: Stokes-Adams Disease, Reflex Vagal Standstill, Drug-Induced Standstill, and Unexpected Circulatory Arrest. P. M. Zoll, A. J. Linenthal, L. R. Norman and others. A. M. A. Arch. Int. Med. 96:639-653 (Nov.) 1955 [Chicago].

Attacks of Stokes-Adams disease are due to inadequate circulation resulting from very slow idioventricular rhythm, ventricular standstill, ventricular tachycardia, or ventricular fibrillation. Their manifestations include dizziness, syncope, prolonged unconsciousness, and convulsions, and they may end in death. Drugs and cardiac puncture, the only therapy heretofore available, are dangerous and often ineffective. The authors developed an apparatus that makes a new therapeutic approach possible. It is an externally applied cardiac pacemaker that stimulates the heart electrically, terminates ventricular standstill, and maintains an externally paced ventricular rhythm for long periods. The cardiac pacemaker is a stimulator that is attached to the patient by two output wires connected to circular chest electrodes. After experimental studies in animals had established the efficacy and safety of external electric stimulation of the heart, the authors used it clinically. Of 37 patients with recent Stokes-Adams attacks, 25 required resuscitation with an external electric cardiac pacemaker. It resuscitated them repeatedly from ventricular standstill and maintained an adequate circulation for as long as five days during persistent standstill. Ten survived 1 to 24 months after resuscitation. From these experiences a program for the treatment of Stokes-Adams disease has been developed, combining the use of drugs with the electric pacemaker. External electric stimulation was also effective in resuscitating three patients with ventricular standstill, syncope, and convulsions due to reflex vagal stimulation. Ventricular standstill due to digitalis or procainamide was terminated by external cardiac stimulation in four patients, two observed by the authors and two treated by others. In one of their patients and in four patients treated by others, the external pacemaker resuscitated the heart from unexpected circulatory arrest due to ventricular standstill. In seven other patients it was ineffective in the presence of ventricular fibrillation or myocardial unresponsiveness due to anoxia from delay in treatment. Prompt external application of the electric pacemaker should be carried out in these emergencies before one resorts to thoracotomy and cardiac massage.

Rupture of the Interventricular Septum. R. G. S. Malone and W. E. Parkes. Brit. Heart J. **17**:448-452 (Oct.) 1955 [London, England].

Rupture of the interventricular septum occurred in seven patients admitted to two Belfast hospitals. Suggestive clinical signs are the appearance of a loud precordial systolic murmur, maximal to the left of the sternum in the fourth intercostal space, and often an associated systolic thrill in this area. At the time of septal rupture the patient's condition deteriorates conspicuously; there is usually profound shock with peripheral circulatory failure and right heart failure. This complication of cardiac infarction seems to result from complete or almost complete infarction of the full thickness of the septal muscle. It seems that it is more likely to occur in the elderly hypertensive patient with advanced coronary arteriosclerosis who has suffered cardiac infarction during the previous fortnight. The prognosis seems to be uniformly poor. All the patients in this series died within a few weeks of septal rupture.

Tobacco as a Contributing Cause of Degenerative Coronary Disease. L. H. Sigler. New York J. Med. **55**:3107-3113 (Nov. 1) 1955 [New York].

Of 1,186 men and 334 women with angina pectoris and coronary thrombosis, 519 men and 292 women were nonsmokers, while 667 men and 42 women had been habitual smokers since early youth. The possible effect of tobacco in expediting the development of degenerative coronary disease in these 1,520 patients, 985 of whom were living and 535 were dead, was studied by a comparison of the age at onset of the clinical manifestations of the disease, the age at onset of coronary occlusion, and the age at death from coronary disease in nonsmokers and smokers. Clinical manifestations of coronary disease before 50 years of age developed in only 29.2% of nonsmokers among men and in 19.1% of nonsmokers among women, as compared with as many as 44.8% of smokers among men and 50.2% among women. The higher the degree of smoking, the earlier the onset of the clinical manifestations of coronary disease. The first attack of coronary occlusion before 50 years of age occurred in only 27.7% of nonsmokers as compared with as many as 42.9% of smokers among men, and in only 14.7% of nonsmokers as compared with as many as 58.3% of smokers among women. The higher the degree of smoking in both men and women, the earlier the occurrence of the first attack of coronary occlusion. In male smokers as many as 20.2% died before 50 years of age, while in nonsmokers only 6.4% died before that age. In women as many as 46.5% smokers and 5.6% nonsmokers died before 50 years of age. In both men and women the higher the degree of smoking, the earlier the occurrence of death. Several possible mechanisms may be considered as the underlying factors in the earlier degeneration of the coronary vessels in smokers. One is the effect of nicotine on the sympathetic nerve ganglions inducing recurring angiospasm of the coronary vessels. Another possible cause may be a metabolic upset resulting from the effect of nicotine on various other parts of the body. A third factor might be a very low-grade prolonged anoxemia resulting from the carbon monoxide of tobacco smoke. A fourth factor may be an occasional allergy to tobacco. Although the earlier appearance of clinical manifestations of coronary disease and of coronary occlusion as well as the earlier death from such disease in smokers, observed in the author's series, would appear to suggest that tobacco expedites the development of coronary disease, one must consider the fact that the differences in the number of smokers and nonsmokers in whom coronary disease developed were not marked. Tobacco may have some influence in expediting the development of coronary disease in a small proportion of the population, but certainly it is not the sole cause of coronary disease, even in those patients in whom it appears to be operative. The underlying causes in all patients are probably heredity, metabolic disturbances, abnormalities in the chemical composition of the blood, and physical, mechanical, and other unknown factors.

Bronchial Lavage for the Recovery of the Tubercle Bacillus: Comparison with Gastric Lavage and Laryngeal Swabbing. A. W. Lees, T. J. R. Miller and G. B. S. Roberts. Lancet **2**:800-801 (Oct. 15) 1955 [London, England].

Laryngeal swabbing, gastric lavage, and bronchial lavage were carried out in each of 144 patients in whom minimal, possibly active, pulmonary tuberculosis had been diagnosed as the result of routine radiography. It was thought that this type of case would provide a good test of the efficiency of the different methods, because experience has shown that it is here often difficult to recover tubercle bacilli, even when the tuberculosis is active. The technique of bronchial lavage was as follows: the patient sat in a chair; his tongue was held forward; he was instructed to keep breathing and to avoid swallowing; and 3 or 4 ml. of 1% amethocaine hydrochloride (Anethaine) with 1/10,000 Adrenaline was run over the back of the tongue, 1 ml. at a time, into the larynx from a 2 ml. syringe. After a few minutes the patient was tilted to the affected side, and 10 to 15 ml. of sterile physiological saline solution was similarly run over the back of the tongue into the larynx from a 20 ml. syringe to which a short piece of rubber tubing was fitted. The saline solution was coughed up from the bronchial tree, and the expectorated material was collected in a sterile basin, transferred to a sterile container, and sent to the laboratory for culture. The operator wore a gown and mask as in taking a laryngeal swab. In 35 of the 144 patients tubercle bacilli were obtained by one or more of the methods used. Bronchial lavage gave a positive result in 26 patients and gastric lavage in 14, and one or both laryngeal swabs (night and morning) gave a positive result in 8. Bronchial lavage was positive in 18 and gastric lavage in 6 cases when the other methods failed, and a laryngeal swab was positive in one case when the other methods failed. Bronchial lavage has the advantage over gastric lavage that it can be done in the outpatient department. But, as in laryngeal swabbing, the operator runs a risk of infection against which suitable precautions must be taken.

Clinical Investigations on the Effect of Penicillin-Sulfonamide-Combination-Preparations. W. Nissel. Wien. med. Wchnschr. **105**:840-843 (Oct. 15) 1955 (In German) [Vienna, Austria].

A combined preparation of sulfamethazine (Diazil) and penicillin was given to 40 patients with pneumonia, bronchitis, and cystitis, respectively. One tablet of the preparation contained 0.5 gm. of 4-6-dimethyl-sulfapyrimidine and 100,000 international units of penicillin. Four times from 5 a. m. to 9 p. m., the patients received two tablets two hours after the ingestion of food. This schedule made possible an eight-hour rest during the night. The duration of the treatment varied from six to eight days. Determinations of penicillin in the patients' serums were carried out two and three hours after the ingestion of the drugs. In most of the patients bacteriostatically effective concentrations were obtained with two tablets given every five to six hours. The clinical course and bacteriological examinations of sputum, urine, and stools of the patients showed the good effect of the preparation, which corresponded with the results of in vitro experiments. Patients with acute pneumonia and acute bronchitis showed an excellent response, although some of them had not responded to previous treatment with penicillin, streptomycin, or sulfonamides. Patients with chronic pneumonia and chronic bronchitis or with recurrences responded poorly or not at all. The combined preparation was definitely effective in all the patients in whom the disease was caused by pneumococci and streptococci, but results were not uniformly good in those caused by micrococci and enterococci. The patients with cystitis, including those with Escherichia coli as the causative agent, showed an excellent response. These results suggest that the sulfamethazine-penicillin preparation may be preferable to the broad spectrum antibiotics in many patients because of its economy, its bacteriostatic effect, and the range of its action. The author cautions against the prolonged use of the drug because of the risk of nonpathogenic bacteria becoming virulent as the result of a disturbance of the normal bacterial flora. Subfebrile temperatures were observed in some of the patients towards the end of the treatment, but these subsided after its discontinuation.

Lente Insulin in the Treatment of Diabetes. R. E. Slayton, R. E. Burrows and A. Marble. New England J. Med. **253**:722-725 (Oct. 27) 1955 [Boston].

Lente insulin has been used in the past two years by the authors in the treatment of 300 patients with diabetes mellitus. Results reported were obtained in special studies of 57 diabetic boys between the ages of 10 and 15 years at a summer camp in Massachusetts, and in 43 patients at the New England Deaconess Hospital. The effect of isophane (NPH) insulin and lente insulin was compared both in day-by-day maintenance studies and in tests involving the determination of the blood sugar level at frequent intervals over a 24-hour period. The insulin dose ranged from 12 to 68 units daily. The diet ranged from approximately 180 to 225 gm. of carbohydrate, 85 to 120 gm. of protein, 90 to 120 gm. of fat and 1,900 to 2,500 calories daily. Both at camp and in the hospital the usual daily program of the patient regarding diet and activity was not disturbed, and, in the studies comparing the effect of the two insulin preparations, comparable conditions were ensured. Lente insulin has a prolonged hypoglycemic effect, with a duration of action of approximately 24 hours. Its action closely resembles that of isophane insulin, and the two types may be used interchangeably. In an additional study, 40 boys with diabetes mellitus were given a combination of lente and crystalline insulin; on one day the two types of insulin were given by separate injections, and on another day they were placed in the same syringe and given in a single injection. Results showed that crystalline insulin may be given in a single injection with lente insulin just as with isophane insulin, with preservation of most of the rapid action of the unmodified type. This procedure is practicable and effective from a clinical standpoint. A few patients, particularly children, may complain of more discomfort at the site of injection with lente insulin than with other types of insulin. This is presumably due to the fact that with other types of insulin used in the United States the tricresol used as a preservative acts as a mild local anesthetic. In the lente insulin the preservative used is methylparaben, which is not anesthetic. Although allergic responses to lente insulin occur in certain patients, the authors' experience suggests that they are less frequent than those to other varieties of insulin.

Inhibiting Influence of Essential Hypertension on Malignant Growth and Rheumatoid Arthritis. S. G. Zondek. Acta med. scandinav. **152**:231-238 (No. 3) 1955 (In English) [Stockholm, Sweden].

People suffering from essential hypertension have been shown to have a lesser inclination than others to malignant growth, including leukemia. This negative relationship is more pronounced in men than in women. The strongly inhibiting influence of essential hypertension on malignant growth may make itself felt in women only in the 40 to 49 year age group and may be much weaker in the following decade; in men, however, it is operative even in the decade from 60 to 69. An additional difference is that certain malignant tumors in women, such as carcinoma of the breast and apparently also of the genital organs, are not affected at all, i. e., in these cases of malignancy the incidence of essential hypertension is more or less the same as its usual incidence in persons without cancer. The possibility that similar negative relationships might exist between essential hypertension and other chronic diseases was investigated in rheumatoid arthritis and diabetes mellitus, both of which are chronic conditions. A value of 160/90 mm. Hg was fixed as the upper limit of normal blood pressure, and only patients with pressures almost always exceeding this value were considered to have essential hypertension. The details of the investigation into a possible relationship between essential hypertension and diabetes are to be published elsewhere, but it may be said that essential hypertension exerts a synergistic effect on diabetes. This synergistic effect, however, is observed only in women and is not very pronounced even in them. The incidence of essential hypertension in patients with rheumatoid arthritis, on the other hand, is much lower than usual. Only 7 of the 95 patients aged 40 to 59 were hypertensive, an incidence of 7.3% instead of the usual incidence of about 20%, and in the 60 to 69 year age group, which contained 31 patients, only 7 again were hypertensive. The nature of the promoting factor or factors active in human cancer is not satisfactorily known, but it may be assumed that the metabolic (possibly hormonal) imbalance representing the background of essential hypertension is unfavorable for the action of this factor or factors, that is, people with essential hypertension may harbor an *inhibiting (antipromoting?)* factor. The promoting factor may be of a different nature in different types of cancer, and this may be the reason why essential hypertension does not exert an inhibitory influence on all forms of malignant growth. Both the promoting factor and the inhibiting factor or factors may be considered nonspecific in nature. This would explain why the cancer-inhibiting factor associated with essential hypertension may also exert either an antagonistic or a synergistic influence on other diseases. Similar properties are possessed by cortisone, and it may be that there is a structural relationship between this substance and the as yet unidentified agent active in essential hypertension.

Failure of Chemotherapy to Prevent the Bacterial Complications of Measles. L. Weinstein. New England J. Med. **253**:679-683 (Oct. 20) 1955 [Boston].

Secondary bacterial infection is the commonest complication of measles, and since the introduction of the sulfonamides these and other potent antibacterial agents have been used for the prophylaxis of the bacterial complications of measles. The author investigated the influence of chemotherapy given before hospitalization in the preeruptive and eruptive stages of measles (rubeola) on the number and type of complications present at the time of admission of patients to the hospital. For comparison, the course of untreated measles in the hospital was also studied, both in cases in which bacterial infection did not occur and in those in which it did develop and was treated with an antimicrobial agent. A total of 428 patients with measles was studied. Of 130 patients hospitalized after having received chemotherapy at home before the development of bacterial infection, 30.4% had secondary bacterial disease at the time of admission. This complication was present in only 15% of 298 cases in which no antimicrobial agent had been used before hospitalization. In 350 patients (256 received no drug and 94 were treated before hospitalization) not treated after admission to the hospital, rate of secondary bacterial infections was 4.6%. Hemophilus influenzae was the organism the most frequently responsible for secondary infection in patients who had received antimicrobial therapy; the pneumococcus, beta-hemolytic streptococci, Staphylococcus aureus, and H. influenzae were the most common etiological agents when drugs were not administered. Of 78 patients who received chemotherapy after entry to the hospital, a superinfection developed in 11% during the course of treatment. Despite the fact that the patients described in this paper are a somewhat selected group and represent only a fraction of cases of measles treated by physicians at home, the data presented strongly suggest that antimicrobial agents do not prevent the development of serious bacterial infection during the course of measles and that their use may actually be associated with an increased risk of development of this complication.

Clinical Experience with the C-Reactive Protein Test. R. J. Roantree and L. A. Rantz. A. M. A. Arch. Int. Med. 96:674-682 (Nov.) 1955 [Chicago].

Recently the detection of the C-reactive protein in human blood has been gaining attention as an index to inflammation or tissue destruction within the body. The C-reactive protein is a specific protein that has been crystallized. Present knowledge points toward its being a beta-globulin, probably bound to a lipid in the serum. The introduction of a commercial antiserum has made the detection of C-reactive protein a practical procedure for any laboratory. It is a simple precipitation reaction that could be done in the doctor's office. This study was undertaken in order to obtain information as to the value and limitation of the test when applied to general medical problems. The authors report experience with the C-reactive protein in 443 general medical cases and 50 normal controls. Some comparisons were drawn between the results of this test and the results of the erythrocyte sedimentation rate, leukocyte count, and temperature recordings in the same patients. The C-reactive protein was rarely present in the serum of a person in whom no inflammatory or necrotizing process could be found. It was consistently found in the serum of patients with bacterial infections, active rheumatic fever, acute myocardial infarct, and widespread malignant disease. It was commonly, but not as consistently, found in cases of active rheumatoid arthritis, virus infection, and active tuberculosis. It was rarely present in cases of limited primary carcinoma, uncomplicated chronic leukemia, multiple myeloma, or widespread superficial dermatitis. The C-reactive protein test gave fewer false-positive reactions than the other indexes of inflammation with which it was compared and, in general, gave a better positive correlation with inflammatory or necrotic processes. It did not give as good a positive correlation with active tuberculosis as did the erythrocyte sedimentation rate. A distinct advantage of the C-reactive protein test is that no interpretation of normal range is necessary. Any positive reaction may be considered abnormal.

Studies of C-Reactive Protein in Patients with Rheumatic Heart Disease: I. Lack of Correlation Between C-Reactive Protein and Aschoff Bodies in Left Auricular Appendage Biopsies. S. K. Elster and H. F. Wood. Am. Heart J. 50:706-714 (Nov.) 1955 [St. Louis].

The C-reactive protein, an abnormal protein not found in the serums of normal patients, appears as an acute phase response in various conditions such as trauma, infections, necrosis, neoplasia, and granuloma formation. It has been characterized as a beta globulin by free electrophoresis and is apparently combined with lipid in vivo. It is a very sensitive, though nonspecific, indicator of the disease activity in acute rheumatic fever and has been used as a guide in the treatment and management of patients. It has often proved more useful than other nonspecific indicators, such as the erythrocyte sedimentation rate or the white blood cell count. Some degree of correlation should therefore be discernible between the presence of C-reactive protein in the blood of patients undergoing commissurotomy for rheumatic mitral stenosis and the finding of Aschoff bodies in the left auricular appendages removed at operation if the existence of these bodies is an indication of acute rheumatic activity. Twenty such patients, aged 28 to 50, none of whom had overt acute rheumatic fever or even a suspicion of moderate rheumatic activity, were thoroughly studied in an attempt to correlate the C-reactive protein, as well as other clinical and laboratory tests for acute rheumatic fever, with the histopathological findings in the resected auricular appendages. The preoperative studies included appropriate roentgenographic, electrocardiographic, and cardiac catheterization determinations, in addition to the clinical examination. Each patient had a urinalysis, a complete blood cell count, erythrocyte sedimentation rate (Westergren method) and antistreptolysin-O determinations, and tests for C-reactive protein. Finger-fracture mitral commissurotomy was performed and the resected left auricular appendages were fixed in neutral Formalin solution and studied microscopically. Aschoff bodies were found in seven. No significant differences were detected between the patients with and those without Aschoff bodies in the appendage in regard to age, sex, duration of heart disease, fever, electrocardiographic abnormalities, white blood cell count, or erythrocyte sedimentation rate. The antistreptolysin-O titers were elevated in four of the patients with Aschoff bodies as compared with three of those without. No correlation was evident between the presence of C-reactive protein in preoperative blood specimens and that of Aschoff bodies in the auricular appendage. Only two of the seven patients with Aschoff bodies had C-reactive protein in their serum before operation, whereas it was present in four of the others. Lack of correlation between the C-reactive protein and the presence of Aschoff bodies in the auricular appendage may indicate that the pathological process is not sufficiently active to lead to the formation of this abnormal protein. The degree of rheumatic activity in cases in which Aschoff bodies are present but no C-reactive protein can be detected in the blood may have little or no clinical significance.

C-Reactive Protein in Serum of Patients with Leprosy. A. S. Rabson. Internat. J. Leprosy 23:155-161 (April-June) 1955 [New Orleans].

The author studied the levels of C-reactive protein in the serums of 100 patients with leprosy. It was hoped that the determination of the C-reactive protein might be of value in detecting the presence and degree of inflammatory response to Mycobacterium leprae infection. It was also hoped that this information might be of some prognostic importance or of aid in evaluating response to therapy. This abnormal protein was found in 37 of 47 patients with lepromatous leprosy classed as active, in 13 of 41 patients with apparently arrested lepromatous leprosy, and in 7 of 12 patients with tuberculoid leprosy. Discussing possible explanations for the absence of C-reactive protein in some of the active cases and its presence in some of the apparently arrested cases, the author suggests that some difference in host response may be involved, but long-term observations will be necessary to establish whether failure of the development of C-reactive protein has a favorable or an unfavorable prognostic significance. Since almost all of the patients in whom C-reactive protein failed to develop were receiving sulfone therapy at the time the serums were studied, the absence of the C-reactive protein may be an early manifestation of a favorable therapeutic response. This would be in accord with the disappearance of the C-reactive protein in patients with acute rheumatic fever during cortisone therapy. It is of interest that two of the patients with active lepromatous leprosy without C-reactive protein were under treatment with cortisone for erythema nodosum at the time the serums were collected. Only 16 of 41 patients with apparently arrested lepromatous leprosy had C-reactive protein, and a number of them had inflammatory diseases unrelated to their leprosy; in only 5 was it impossible to find an explanation for the presence of the C-reactive protein, but it is nevertheless possible that undetected foci of infection existed. The results in the 12 patients with tuberculoid leprosy are difficult to interpret. In all of the seven patients with C-reactive protein it was assumed that the disease process had been arrested, and in only two of these could an adequate reason for the C-reactive protein be found. Here again the possibility of undetected inflammatory foci of a nonlepromatous or of a lepromatous nature must be considered. With regard to the presence of C-reactive protein in 19 of 24 patients with leprosy and secondary amyloidosis, the author says that the relationship of C-reactive protein to amyloidosis is as yet unknown and merits further study.

Hydatid Cyst Associated with Goiter. E. Logaldo. Rev. Asoc. méd. argent. 69:256-258 (Aug. 15-30) 1955 (In Spanish) [Buenos Aires, Argentina].

Hydatid cysts in the thyroid gland are very rare. The Argentinean literature reports 13 cases. In none of those did the cyst develop on a hyperfunctioning nodular goiter. Sixty-eight cases of hydatid cysts were observed in the various departments of the Policlinico Provincial of Buenos Aires in the course of the last 13 years. The cysts were located in the lungs or in the liver in the majority of the cases, in some other structures in one or two cases, and in a nonhyperfunctioning thyroid gland in one.

The history of a patient in whom the hydatid cyst developed on a hyperfunctioning nodular goiter is presented. A woman 32 years old had five children. Pregnancy, delivery, and puerperium had been normal on every occasion. A small, asymptomatic goiter was observed on the left side of her neck while she was apparently in normal health. In three months the right side of the goiter rapidly grew to the size of an orange, producing marked symptoms of hyperthyroidism, without exophthalmos. The chest was normal on roentgen examination. The treatment consisted of administration of propylthiouracil in daily doses of 200 mg., hypertonic dextrose solution, sedatives, and C and B vitamins for three weeks, followed by discontinuation of the antithyroid treatment and administration of Lugol's solution for 10 days and an operation after that period. A preoperative diagnosis of thyroid hydatid cyst was not made. The operation consisted of a subtotal thyroidectomy, which brought rapid cure. Biopsy studies of the left half of the thyroid showed nodular goiter. Macroscopic study of the operative specimen and section of the specimen showed hydatid cyst occupying the whole right half of the thyroid gland with three daughter cysts in its cavity. The patient is in normal health four years after the operation.

Arthrogryposis Multiplex Congenita: Review of 54 Cases. J. H. Kite. South. M. J. 48:1141-1146 (Nov.) 1955 [Birmingham, Ala.].

The occurrence of congenital limitation of motion in several joints, associated with one or more congenital deformities, is described in 34 boys (63%) and 20 girls (37%). Motion in the shoulders was limited to less than a right angle in 22 patients, the elbow could not be extended in 22, and in 7 it was fixed in extension; the head of the radius was dislocated in 4 and the wrist was flexed in 31 and hyperextended in 3. The fingers showed many variations in the limitation of motion in the various joints. Twenty-three children showed dislocation of the hips. Motion was limited in the knees in 43 children. Of the 54 patients, 42 (76%) had clubfeet; the right foot only was clubbed in 6 patients, the left in 4, and both in 32. Nine children had a very severe bilateral flatfoot deformity, and six had a metatarsus varus type of deformity. Only 4 of the 54 children had normal feet. Two children, one girl and one boy, had arthrogrypotic mothers and one boy had an arthrogrypotic father. The family history of six children revealed ancestors with deformities. Two siblings, a boy and a girl, were arthrogrypotic, their father and mother being first cousins with no deformities on either side of the family for several generations. There were three sets of twins in the author's series, and in each case the twin was normal, while the one treated was a typical arthrogrypotic; one girl had a normal twin brother, one boy had a normal twin brother, and the third set were identical twin boys. Of the 54 arthrogrypotic children, 17 were first-born children, 10 were second-born, 7 third-born, 2 fourth-born, 4 fifth-born, 3 sixth-born, 2 seventh-born, 3 eighth-born, one ninth-born, and one tenth-born, and in the remaining 4 the order of birth was not known. Twenty-six children were full-term babies, 10 were premature, and in 18 there was no statement. The fairly typical syndrome of congenital limitation of motion in several joints associated with one or more congenital deformities is of unknown causation and has been a rare condition for the past 30 years, but there has been a sudden increase of this condition in the author's practice during the past year. With regard to heredity, the genetic theory is substantiated by the fact that three arthrogrypotic parents have had children with similar deformities. It is controverted by the fact that there were three sets of twins, one in each set normal and one arthrogrypotic. The arthrogrypotic was the first-born child in one-third of the author's cases. Only half of the babies were known to be full term. Arthrogryposis occurs more frequently in charity patients than in private practice. Correction of deformities lies in the orthopedic field.

Clinical Experiences with the Skin Biopsy Method of Detecting Chromosomal Sex. A. R. Sohval, J. A. Gaines and J. L. Gabrilove. Am. J. Obst. & Gynec. 70:1074-1082 (Nov.) 1955 [St. Louis].

A sex difference has been observed in intermitotic nuclear structure in the cells of various tissues and organs of numerous animal species and humans. A conspicuous mass of chromatin, termed sex chromatin, is found in approximately two-thirds of the cells of females. The sex chromatin is approximately one micron in size in human epidermal nuclei and is planoconvex with its flattened aspect in contact with the inner surface of the nuclear membrane. A smaller chromatin body, lacking the characteristic size and morphology of the female sex chromatin, may be encountered very infrequently (approximately 5%) in cells of males. The present study was undertaken in an effort to explore the usefulness of the skin biopsy method of chromosomal sex detection by applying it to individuals with sex hormonal disturbances, intersexual abnormalities, cryptorchism, and adrenocortical disorders. Sexually and hormonally normal males and females served as controls. The accuracy and relative simplicity of chromosomal sex detection by means of skin biopsy was confirmed in 28 male and 27 female patients who were sexually and hormonally normal. Studies of nuclear morphology in the skin of individuals with marked aberrations of sex hormonal status indicate the stability of the sex chromatin. These observations are consistent with the hypothesis that the characteristic chromatin body is derived from portions of the two X chromosomes of females and that it is not an index of sex hormonal function. The male type of epidermal nuclear structure was encountered in a patient with ovarian agenesis (Turner's syndrome), in one with male pseudohermaphroditism, and in another with either male pseudohermaphroditism or true hermaphroditism. The chromosomal sex corresponded to the apparent genital sex in a boy with unilateral uncomplicated cryptorchism, in a man and a woman with adrenal cortical hyperfunction (Cushing's syndrome), and in a man and a woman with adrenal cortical hypofunction (Addison's disease). These studies support the view that the identification of chromosomal sex by the skin biopsy method is helpful in the differentiation between female and male pseudohermaphroditism.

An Epidemic of Histoplasmosis in Warrenton, North Carolina. T. Parrot Jr., G. Taylor, M. A. Poston and D. T. Smith. South. M. J. 48:1147-1150 (Nov.) 1955 [Birmingham, Ala.].

An epidemic of histoplasmosis that occurred in Warrenton, N. C., in May, 1947, was thought to be an outbreak of ornithosis because of the association with pigeons that used the belfry of an old church for roosting and nesting. A contractor and six workmen entered the belfry for the purpose of reconstruction. It was estimated that there was about one-half ton of pigeon feces deposited on the floors. Some squabs were removed by the workmen and, according to reports, consumed by them and their families. The contractor and the six men became ill 12 to 14 days after their exposure to the dried pigeon feces. All had symptoms described as characteristic of influenza. All attempts to isolate a causative agent failed, and the patients recovered in from one to four months and remained well. Five years later, one of the patients, who had been most severely ill, had a routine chest roentgenogram made, revealing hundreds of small calcified nodules of the type commonly observed in healed primary histoplasmosis. When restudied, six of the seven original patients had positive skin tests to histoplasmin and five showed calcified spots in the lungs. Serums from the acute and convalescent phases of the disease were available from four patients, and these revealed complement-fixing antibodies to Histoplasma capsulatum. The occurrence of an epidemic of histoplasmosis in a nonendemic area should remind one of this disease in differential diagnosis under certain circumstances.

SURGERY

Mitral Valvotomy: A Follow-up of 45 Patients for Three Years and Over. C. Baker, R. Brock and M. Campbell. Brit. M. J. 2:983-991 (Oct. 22) 1955 [London, England].

Of 31 women and 14 men with mitral stenosis, the first 45 patients who survived mitral valvulotomy at Guy's Hospital in London, England, 20 were in the preoperative state of total incapacity (grade 4), 24 in that of gross disability (grade 3), and one in that of moderate disability (grade 2). All of these patients were followed up for three years and some for up to six years. The first assessment of the patients' state was made one year after the operation, when 21 patients had obtained excellent results (3 or more grades of improvement), 17 good results (2 grades of improvement), 5 fair results (1 grade of improvement), one poor results (no improvement), and one patient had died; thus results of operation were satisfactory in 38 patients and disappointing in only 7. During the second postoperative year 6 patients deteriorated, and at the end of three years 11 of the 38 patients had joined the disappointing group, leaving 27 with good or excellent results. The third year after the operation is evidently more critical than the first two years, but some patients who were followed for four and five years maintained their improvement and were leading active lives. Results after three years were much better in those who were graded as excellent than in those who were graded as good some months after operation, showing that this clinical judgment was in general a valid one for the future. The size of the heart, the degree of disability, and the presence of atrial fibrillation before the operation did not seem to influence the result in this three-year period, but they will do so in the long run. Measurement of the valve at operation showed that the results were better in those cases in which it was less than 1 cm. in diameter. Patients in whom the surgeon found it impossible to produce an opening that was as large as 2 cm., or in whom there was gross incompetence, did not obtain good results. Of 18 patients in whom a full opening or one over 3 cm. was produced by surgery, 17 obtained good results and only one poor results. Mitral regurgitation before valvulotomy reduced the ratio of good results and increased that of only fair results. There was a close association between calcification of the valve and regurgitation. There was not a single case in which a successful valvulotomy failed to reduce pulmonary hypertension, and, in general, the greater the degree of pulmonary hypertension, the better the chance of a good result. In three patients atrial fibrillation occurred after operation and normal rhythm could not be restored; the condition of all three patients was poor but their number was small. Fourteen of the 18 patients who had fibrillation preoperatively maintained good or excellent results and thus did better in maintaining the improvement gained by valvulotomy than those who had normal rhythm before the operation. Loss of improvement from operation when atrial fibrillation occurred later indicated that the margin of benefit conferred was not great and suggested that the valve had restenosed. There was no correlation between the presence or absence of Aschoff bodies in the auricular appendage and the clinical evidence of rheumatic activity and the subsequent course of the patients. There was evidence in three patients, of whom one died and two had second operations, that there was some restenosis of the valve, which was more likely due to further rheumatic infection than to fibrosis from stress. By comparing in some detail the patients who have maintained their good results with those who have lost them, it appeared that, although at first the patient's symptoms and increased capacity are more important than any diminution in the physical signs, the latter give a better indication that the good results are likely to be lasting, and improvement in the electrocardiogram or roentgenogram is also of value. One can say that 2% of the authors' patients lost all their improvement in the first year, 6% in the second year, 10% in the third year, and perhaps 15% in the fourth year. It is unlikely that improved selection and improved surgery will ever prevent some progressive deterioration, for valvulotomy is performed on a heart that has been damaged by rheumatic infection. But, although some patients have not maintained their initial improvement, even these have had the benefit of increased or normal activity for one year or more. That second operations can be done on some patients if restenosis occurs emphasizes the need for a thorough follow-up.

Systemic Embolism and Left Auricular Thrombosis in Relation to Mitral Valvotomy. J. R. Belcher and W. Somerville. Brit. M. J. **2**:1000-1003 (Oct. 22) 1955 [London, England].

Of 430 patients on whom mitral valvulotomy was performed, there was a history of systemic embolism before the operation in 54 (13%). Comparison of these 54 patients with 200 consecutive patients without embolism who had mitral valvulotomy revealed that the patients with embolism differed from those in the control group in that the average age at operation was higher, the sex incidence was less predominantly female, atrial fibrillation was more common than sinus rhythm, dyspnea was less severe, the left auricular appendage was larger, and the incidence of mitral incompetence was slightly greater. Five (9%) of the 54 patients with preoperative emboli had a further embolic incident at or after valvulotomy. At operation 68 patients (16% of the 430) had a thrombus in the left auricular appendage, and embolism developed in 11 of these (16% of the 68) during or after operation. Systemic embolism was closely related to mitral valvulotomy in 24 (6% of the 430 patients): it occurred during operation in 17, within a few hours in 2, and within 15 days in 5. Late emboli occurred in four patients: after seven weeks in one, after one year in two and after 16 months in one. Of the 24 patients, 5 (21%) had a history of preoperative embolism. Thrombosis of the left auricular appendage could not be diagnosed before operation. In general it was observed more often in male patients with atrial fibrillation and mitral calcification. It was more than twice as common (30%) in patients with a history of previous embolism as in those without such a history (13%) and was present in almost two-thirds of those in whom an embolus developed at operation. Embolism was observed more than twice as often when a fresh "red" thrombus had occurred as when a "gray" thrombus had been formed. A successful valvulotomy will not prevent further systemic embolism, but there is reason to believe that it will reduce its incidence.

Surgical Procedure for Coronary Arterial Disease. D. S. Leighninger and C. S. Beck. Angiology **6**:395-402 (Oct.) 1955 [Baltimore].

A surgical procedure, known as the Beck 1 operation, was practiced in 88 patients with coronary arterial disease. It consists of the following steps: mechanical abrasion of the epicardium and the cardiac surface of the parietal pericardium, application of an inflammatory agent (0.2 gm. of powdered asbestos) to the surface of the heart, partial ligation (3 mm.) of the coronary sinus near its ostium into the right auricle, and application of tissue grafts (the abraded pericardium and vascular mediastinal fat) to the surface of the heart. Mechanical abrasion of the epicardium produces a mild inflammatory reaction, which is a stimulus to the growth of intercoronary arterial communications. It also removes the epicardium as a mechanical barrier to the growth of extracoronary arterial communications from the abraded pericardium and vascular mediastinal fat into the myocardium. The inflammation resulting from the asbestos powder is also a stimulus to the growth of intercoronary communications. The application of tissue grafts to the surface of the heart provides for the possible growth of extracoronary communications. Ligation of the coronary sinus provides for greater extraction of oxygen from blood in the capillary bed and also stimulates the development of intercoronary communications. Thus the major benefit from this surgical procedure is stimulation of growth of intercoronary communications, which bring additional small but important quantities of blood to the ischemic myocardium and prevent the development of an oxygen differential. This additional blood saves life and saves the myocardium from degeneration. There were seven operative deaths (an operative mortality of 8%); two of the seven deaths resulted from thoracotomy alone, and five patients died postoperatively before their discharge from hospital. Since discharge from the hospital, only two patients died, a late mortality rate of 2.3%. The more important component of the so-called operative mortality was the disease rather than the surgical procedure. Surgical intervention relieved symptoms to a significant degree in 9 out of 10 patients. The trend of the authors' experience seems to indicate that this surgical procedure prolongs life. There is no experimental evidence to indicate that medical therapy adds a single drop of blood to ischemic areas of myocardium. In view of this limitation, together with the evidence of benefit from and safety of the surgical procedure described, the patient with coronary arterial disease should be informed that there is a method of treatment more effective than rest and limitation of activity. The Beck 1 operation should be done early in the course of disease, before a fatal oxygen differential or before irreparable damage to the myocardium occurs.

Contribution to Early Diagnosis of Pulmonary and Bronchial Carcinoma. H. Schmidt. München. med. Wchnschr. **97:**1349-1351 (Oct. 14) 1955 (In German) [Munich, Germany].

Of 30 patients operated on for carcinoma, 8 were subjected to pneumonectomy and 15 to lobectomy. In the remaining seven patients, thoracotomy revealed that pneumonectomy, although technically feasible, would have been an immediate threat to the patient's life and would not have made its prolongation possible; pneumonectomy, therefore, was not performed. There were no operative or early deaths. An early diagnosis was made in only 7 of the 23 patients on whom resections were performed; in the 16 other patients the diagnosis had been delayed until the time of operation for from six months to one and a half years. In the seven patients in whom surgical intervention was limited to thoracotomy, the diagnosis was delayed up to two years. Carcinoma had either been mistaken for tuberculosis or had remained concealed by atypical secondary pneumonias. Of the 23 patients who underwent resection, 10 had pulmonary carcinoma and 13 had bronchial carcinoma. Early clinical and roentgenologic manifestations of pulmonary and bronchial carcinoma are highly atypical. The following rules should be observed to further early diagnosis and early surgical intervention. 1. Solitary pulmonary foci should be removed by resection, although they may show only little increase in size and although definite differentiation from active tuberculoma may not be possible. 2. Bronchography should be performed in the search for bronchial tumors in all patients with atypical bronchopneumonia, pneumonia, pleuropneumonia, lung abscess, or pulmonary gangrene in whom complete restoration to normal does not occur or who have recurrences. 3. All fresh, apparently tuberculous processes with involvement of hilus in male patients, without any demonstration of bacilli or with a single demonstration, must be suspected to be tumors, and bronchograms are, therefore, indispensable. The observation of acute atelectases in cases of this type is pathognomonic of bronchial carcinoma. In cooperation with special clinics one must attempt clarification, without a prolonged observation period, in all cases in which carcinoma is suspected. Excellent results may be obtained from early surgical intervention consisting of lobectomy rather than pneumonectomy. Operative and early mortality rates associated with pulmonary resection need not exceed those of gastric resection. Today the approach to the lungs and bronchi for diagnostic purposes is easy and may be of considerable aid in giving malignant lesions of the lung first place for surgical intervention among those of all the other internal organs.

Dangers and Management of Retained Tracheobronchial Secretions. H. T. Ransdell Jr. Am. Surgeon **21:**1001-1007 (Oct.) 1955 [Baltimore].

There are patients who literally drown in their own tracheobronchial secretions. Normally these secretions are eliminated by ciliary action and by cough. If anything interferes with this elimination, e. g., impairment of the cough reflex or ciliary action, these secretions dam up with resulting obstruction of the airway, atelectasis, hypoxia, pneumonia, and death. Factors responsible for excessive tracheobronchial secretions and their retention are: aspiration of oral and pharyngeal secretions; chronic bronchitis (often secondary to heavy smoking) and mild bronchiectasis; inability of the patient to cough and expectorate; unconsciousness of patient as with narcotics, anesthetic agents, and coma or comatose states; ineffectual cough due to pain or tight abdominal binders; tenacious secretions; paradoxical motion of chest or mediastinum as with thoracoplasty, multiple rib fractures, and sucking wounds of the chest; semi-Fowler's position, which favors collection of secretions in the bases of the lungs; and atelectasis. The most important symptom of retained tracheobronchial secretions is a relatively unproductive, wet, "rattly" cough. With more advanced bronchial obstruction, dulness, diminished breath sounds, and fremitus usually are present. Rhonchi detectable by stethoscope usually are a late or pneumonic expression of retained secretions. Roentgenograms often are of great help and suggest retained secretions if the lungs appear poorly aerated and if atelectasis is demonstrated. Patients should be trained to cough. During major surgery an endotracheal tube should be used to facilitate aspiration of secretions and, before the patient is removed from the table, all pharyngeal and tracheobronchial secretions should be removed. The patient is encouraged to cough at least every hour during his first 24 to 48 hours after operation and at gradually increasing intervals thereafter. His position is changed, side to back and back to side. As soon as possible, the patient should be gotten out of bed and encouraged to walk. The following aids facilitate coughing: several deep breaths or a little swallow of water just prior to coughing, support of the operative incision during the coughing either by the attendant or the patient himself, and having the patient sit up while coughing. Inhalation of high humidity atmosphere for 20 to 30 minutes, three or four times daily, is helpful in thinning or preventing drying of the secretions and thus making them easier to cough up. Ammonium chloride, in 1 gm. doses every two to four hours, is very helpful in this respect. Bronchoscopy and tracheobronchial catheter aspiration is necessary in patients unable to remove their tracheobronchial secretions. Hardly anything is more gratifying than to see a cyanotic moribund patient with the "death rattle" clear his cyanosis, reaerate his lungs, return to consciousness, and start on the road to recovery from an apparently hopeless situation, within 10 to 15 minutes after aspiration of his tracheobronchial secretions.

Contribution to Prophylactic Hormone Therapy with Testosterone in Mammary Carcinoma. G. Buttafarri. Riforma med. **69:**1022-1026 (Sept. 10) 1955 (In Italian) [Naples, Italy].

Testosterone administered to patients with cancer of the breast treated surgically retarded the fatal progression of the disease and prevented the onset of early relapses and metastases. Buttafarri used the hormone therapy for 20 patients in the 35 to 45 year age group. After a radical mastectomy with dissection of the axilla had been performed and the operative wound had healed, the patients were given roentgen irradiation to the ovaries on two anterior and posterior fields centered around each ovary. A total of 600 r was given to each field. One month later, testosterone therapy was begun with a test dose of 50 mg. weekly for three weeks, followed at first by a dose of 50 mg. every other day for one year and then by a maintenance dose of 250 mg. every two weeks for the following years. A follow-up could be made of 11 patients, some of whom are still living and receiving the hormone 6 to 10 years after the operation; the others in whom the radical intervention was performed in 1950 are also still continuing the therapy. All are euphoric and show a marked improvement in general condition, gain in body weight, and a greater work endurance. Despite the large doses of testosterone, virilizing side-effects were never too marked. In a few instances they were decreased by substituting the hormone with methylandrostenediol. Because testosterone therapy did prolong the survival time of his patients, the author feels that it should be used more extensively for patients with breast cancer after they have undergone a radical mastectomy.

Intermittent Claudication and Sympathectomy. G. E. Mavor. Lancet **2:**794-796 (Oct. 15) 1955 [London, England].

In limited occlusion of the main vessel of the lower limb secondary to atheroma, the collateral circulation forms an adequate bypass returning a distal pulse to the main vessel. The resting nutritional needs of the limb are met, and symptoms are limited to periods of exercise. The classical exercise symptom is intermittent claudication, with pain in the calf muscles. With propagation of the main-vessel thrombosis to involve both femoral and popliteal arteries in continuity, rest pain and ischemic changes in the foot arise, but intermittent claudication remains the dominant complaint in half the cases. Until recently the treatment of intermittent claudication with pain in the calf has resolved itself into lumbar sympathectomy. However, it has always been questionable whether this operation is worth while in the treatment of exercise pain itself. With the recent advent of direct surgery for the occluded artery, the value of sympathectomy demands reexamination. The author studied the effect of lumbar sympathectomy on intermittent claudication in 54 patients, in whom the exact site and extent of the main-vessel occlusion, secondary to atheroma, was known. No patient was completely relieved of exercise pain in the calf.

Only 9 of the 54 patients had a significant improvement in exercise pain, meaning that the patient's activities as regards work and pleasure were favorably affected. The remaining 45 patients were either improved to an insignificant degree, unaltered, or made worse by the operation. The author concludes that lumbar sympathectomy is not worth while in the treatment of intermittent claudication itself. Where direct surgery is contemplated in cases of segmental main-vessel thrombosis in the lower limb, sympathectomy may be postponed until such time as its effects will be more obviously beneficial. A possible exception may be popliteal occlusion.

The Lumbar Intervertebral Disc Disease Syndrome: Clinical Correlation of 175 Cases. W. E. Stern. West. J. Surg. **63:**647-653 (Oct.) 1955 [Portland, Ore.].

Of 175 patients with the clinical syndrome of lumbar intervertebral disk disease who were operated on, the clinical diagnosis was confirmed by surgical intervention in 163, while in 12 no intervertebral disk disease was found on operation. The most frequently occurring clinical findings in these 175 patients were correlated with the operative findings in an effort to determine the presence or absence of a common denominator by which more accurate diagnoses may be made. Most of the patients had back pain, leg pain, limitation of back mobility, limitation of straight leg raising, and neuroparalytic phenomena. Almost every patient who did not have two or more of these major physical findings or a clear history thereof showed findings of sufficient value to permit diagnosis. However, the results of the clinical examination did not make it possible to distinguish with certainty between those 156 patients in whom surgical intervention revealed root compression from a diseased disk and those 6 patients who had root compression from other causes. It was also impossible to separate the 7 patients who had the syndrome of back and leg pain but in whom root compression was not found on surgical intervention from those 156 who did have root compression. The statement seems justified that rarely has the diagnosis of herniating intervertebral disk been made in the absence of back or leg pain, or a clear history thereof, as well as evidence of some nerve root involvement as detailed by deficiency of function or aggravation of symptoms by nerve root stretch. Myelography was used as an adjunct in diagnosis and was performed in all but one patient. There were two false-positive myelograms unassociated with disease at a given level. Negative studies were more frequent. Conservative treatment with bed rest is recommended for the initial attack of lumbar intervertebral disk disease as well as recurrent attacks, if widely separated by months or years. Lack of response to conservative management during the initial attack, frequent recurrent attacks despite adherence to prophylactic measures, and the development of prominent neuroparalytic phenomena are indications for surgical correction and relief.

The Management of Esophageal Varices in Cirrhosis of the Liver in the Absence of Gastrointestinal Hemorrhage. I. B. Brick and E. D. Palmer. South. M. J. *48:*1021-1023 (Oct.) 1955 [Birmingham, Ala.].

Esophagoscopy by means of a semi-flexible instrument with a telescopic attachment giving four diameter magnification was used by the authors in patients in whom hepatic cirrhosis had been confirmed by histological examination of the liver. They found many more cases of esophageal varices than they had suspected clinically or than could be found by x-ray study. One hundred sixty-one patients with varices were found in 238 cases. Only 74 of these patients had a history of hemorrhage, leaving 87 cases in which no hemorrhage had occurred. There is nearly unanimity of opinion that portal decompression by either portacaval or splenorenal shunt is indicated in patients with esophageal varices and cirrhosis in whom there has been a hemorrhage. Because of their endoscopic studies the authors were confronted with the problem of deciding how to manage a sizable group of patients with esophageal varices that had not bled. They performed decompression procedures in 50 of the 161 patients with esophageal varices. These 50 included 18 who had never had bleeding. Five of these 50 patients died during the first 18 postoperative weeks, 4 from liver failure and one from acute cardiac failure with pulmonary edema, making a mortality rate of 10%. In the same period of observation in the untreated group, there were eight deaths as a result of the first gastrointestinal hemorrhage. Seven others died as a result of second, third, or fifth hemorrhage. With the passage of time the favorable results of such treatment will become even more obvious in comparison with the untreated group. The authors are of the opinion that the presence of esophageal varices in the absence of a history of gastrointestinal hemorrhage is a relative indication for surgical portal decompression in the cirrhotic patient.

Minimization of Risk and Disability in Idiopathic Ulcerative Colitis. C. Dennis and K. E. Karlson. Am. J. Surg. **90:**761-766 (Nov.) 1955 [New York].

In an earlier report on 267 patients with ulcerative colitis seen at two hospitals prior to 1951, the authors stated that, of the group treated conservatively or with emergency surgery only, 7.7% of those followed were found living and well at the end of the follow-up period, while of the group treated with elective operation, 72.8% of those followed were found living and well. The authors comment on cancer as a complication of idiopathic ulcerative colitis, on types of surgical interventions, on the prognosis of patients who have undergone total colectomy and ileostomy for idiopathic ulcerative colitis, and on proper surgical technique for ulcerative colitis. The prognosis is much better with appropriate surgical management than with any other plan of therapy. In patients with idiopathic ulcerative colitis of several years' standing, the risk from total colectomy and ileostomy is definitely smaller than the risk of death from carcinoma as a complication of colitis. Transthoracic vagotomy may lead to deferral of colectomy for a variable period of time, but it appears to be indicated only in patients in whom lesions persist in the small intestine after they have undergone colectomy and ileostomy. As regards survival, the late prognosis of patients subjected to ileostomy and total colectomy is no worse than that of the general population; in terms of morbidity it is somewhat less favorable, but it is immensely superior to that of ulcerative colitis patients not subjected to ileostomy and colectomy. The surgical management of idiopathic ulcerative colitis demands a clear understanding of the factors related to a good ileostomy and meticulous attention to details. There is no excuse for impairment of sexual power in connection with the removal of the rectum for uncomplicated idiopathic ulcerative colitis.

Rectal Biopsy as an Aid in Hirschsprung's Disease. O. Swenson, J. H. Fisher and H. E. MacMahon. New England J. Med. **253:**632-635 (Oct. 13) 1955 [Boston].

The authors advocate rectal biopsy as an aid in cases in which the diagnosis of congenital megacolon (Hirschsprung's disease) proves difficult. The indications for rectal biopsy are demonstrated on the basis of the histories of 4 patients with congenital megacolon who were selected from 169 patients with this defect. The first case demonstrates that, when the colon has been deactivated for 6 or 12 months by a colostomy, the typical x-ray findings of a dilated colon, with a narrow distal segment, are no longer present. Rectal biopsy is helpful in making a definite diagnosis in such situations. In the newborn infant the diagnosis of congenital megacolon is difficult to establish, because the colon, particularly if a long segment is involved, does not become dilated and hypertrophied until the intestinal tract has been functioning for several months. In infants whose whole colon is aganglionic, symptoms of obstruction of the upper large intestine develop soon after birth, yet a barium enema reveals no obstruction of the large intestine. In such a case a biopsy specimen without ganglion cells elucidates the cause of the obstruction. Patients with a short lesion of congenital megacolon are a third group in which biopsy is useful. In these cases the lesion is so low that the radiologist is not able to demonstrate a narrow segment extending through the rectosigmoid. Failure to find ganglion cells in the biopsy specimen will establish the diagnosis. A fourth indication for biopsy concerns patients who may have diarrhea, episodes of intestinal obstruction, or other symptoms of colonic dysfunction instead of the usual picture of chronic constipation. The authors perform rectal biopsy under general anesthesia. The anus is dilated and a 1 cm. longitudinal incision is made through the mucosa on the side of the anal canal, beginning at the white line of Hilton, and extending up between the columns of Morgagni. By means of blunt dissection the mucosa is readily separated from the internal sphincter and rectal wall. The internal sphincter is a white, firm muscle band. A 5 to 10 mm. segment of this muscle is excised, extending from the internal sphincter into the rectum. Since the ganglion cells are between the circular and longitudinal layers, both must be included in the biopsy. Bleeding should be controlled with fine chromic catgut sutures placed along the cut edges of the mucosa. The incision is left open to prevent infection. The specimen is fixed in Formalin and multiple sections are examined for ganglion cells. If these are not found, the diagnosis of congenital megacolon is established. In control material from 10 cadavers with normal colons, ganglion cells were found. Severe bleeding in one child was the only complication in 40 patients in whom rectal biopsy was done to establish the diagnosis of congenital megacolon. In 19 of these this diagnosis was verified, because no ganglion cells were found. The specimens from the other 21 patients contained ganglion cells, and the success of subsequent conservative management confirmed the diagnosis of chronic constipation.

The Human Bite. G. R. O'Brien, J. L. Kostecki and H. Colberg. New York J. Med. 55:2943-2944 (Oct. 15) 1955 [New York].

Ten persons between the ages of 13 and 46 years had injuries of the lip, nose, cheek, ear, or forehead caused by human bites sustained when fighting or in passionate lovemaking. Two patients were men and eight women; three were white and seven Negro. Each was given 1,500 units of tetanus antitoxin and large doses of penicillin, usually 100,000 units every three hours. The methods of repair varied according to the extent of the avulsed area, its location, and its depth. If the defect was not too extensive a "V" excision was performed with primary closure; if the defect involved the lip, as it did in three of the patients, mucosa and skin below the vermilion border were included. If the defect was mucosal and rather long in extent, a mucosal flap was advanced from within outward (lipshave type) along the vermilion border. The defect occasionally was allowed to scarify, and then secondary repair by one of the accepted methods was performed. Patients whose wounds closed primarily required an average of 2 days of hospitalization, while those with delayed or secondary repair of wounds required an average of 15 days of hospitalization. Results showed that, with the use of antibiotics in large doses, primary closure or immediate coverage by skin graft or mucosal flap is possible without fear of complications. There were no complications except in one patient in whom an iodine burn developed as a result of application of iodine by the patient's mother, before hospitalization. The end-results were very good as a rule. In none of the patients was the use of cautery entertained, and the authors believe that it is not necessary to cauterize these wounds.

The Results of Surgical Palliation in 32 Patients with Transposition of the Great Vessels. T. O. Murphy, V. Gott, C. W. Lillehei and R. L. Varco. Surg. Gynec. & Obst. 101:541-544 (Nov.) 1955 [Chicago].

Two of the authors, Lillehei and Varco, found that of 114 patients with complete transposition of the great vessels (pulmonary artery and aorta) only 4% were alive at 7 years of age, and 78% had died during the first year of life. It is obvious, therefore, that, if any surgical intervention is to be carried out, it must take place at an early age and at the first signs of deterioration of the general condition of the patient. The authors attempted surgical palliation of complete transposition in 32 patients between March, 1952, and January, 1955. Twenty-two were operated on during the first year of life, 17 of them during the first six months. Complete transposition of the great vessels cannot exist as a pure form of congenital heart disease, for it is incompatible with life; some sort of an intracardiac shunt is necessary to allow mixing of the otherwise isolated pulmonic and systemic circulatory systems. Sixteen of the 32 patients had interventricular septal defects, 11 had patent ductus, 10 had interatrial septal defects, 10 had patent foramen ovale, 6 had pulmonary stenosis, 5 had overriding pulmonary artery, 3 had overriding aorta, 2 had hypoplastic aorta, 2 had coarctation of the aorta, and the following defects were found in one patient each: hypoplastic pulmonary artery, hypoplastic right ventricle, levocardia, and bicuspid pulmonary valve. The following types of surgical procedure were attempted. The establishment of a venous shunt to the systemic (right) atrium by means of transplanting the right pulmonary vein was attempted in 10 patients, and a further attempt at correction by also transplanting either the superior or inferior vena cava to the pulmonic (left) atrium was attempted in 13 more patients. In six instances, in which stenosis of the pulmonary artery was present, either a Blalock or a modified Potts procedure was done to establish systemic arteriolization of the pulmonary vascular bed. In one patient, an attempt was made to repair a coarctation of the aorta and to ligate a patent ductus. In two instances, the patient expired before any procedure other than a thoracotomy could be done. Twenty-five of the patients died during or after surgical treatment. The seven survivors have been followed from 15 to 36 months since surgery. They have all gained weight and approach a more normal existence. Several of these children have rather suddenly learned to walk after recovering from the surgical procedure. The degree of cyanosis is definitely lessened, although they still show mild cyanosis with exertion. Even though surgery in this group of patients carries with it a high mortality, the seven surviving patients are representative of a salvage beyond that to be expected from the natural history of this crippling lesion. Four of these seven survivors were critically ill at less than 2 months of age, when the surgery was performed. The authors continue to hope that newer cardiac bypass techniques will permit complete correction.

Mitral Commissurotomy: Study of 400 Cases. F. d'Allaines and P. Blondeau. Presse méd. 63:1361-1364 (Oct. 15) 1955 (In French) [Paris, France].

Mitral commissurotomy was performed in a series of 400 patients at the Hôpital Broussais, Paris, France. Seven patients died on the operating table and 22 within the first two postoperative weeks, making the mortality rate about 7%. This rate has remained fairly constant over the past four years because, as the authors improve the technique of the operation, they operate on patients in more and more serious conditions. All survivors have been followed up for at least six months, and two-thirds of this number have obtained good or excellent results. Experience has taught the authors that patients who show no impairment of function should not be operated on. The indications have been gradually broadened to include patients over 50 years of age; those with mitral stenosis combined with right ventricular insufficiency, even if advanced; and those with polyvalvular lesions in whom mitral stenosis dominates the clinical picture. Slight fever, complete arrhythmia, and peripheral embolism are not contraindications to commissurotomy. The coexistence of mitral insufficiency presents a problem of indication that must be decided on the basis of clinical roentgenographic, and electrocardiographic evidence and operative studies of left ventricular pressure. At operation on any patient with mitral stenosis, if the auricle should prove to be too small, the surgeon should go directly through the atrium. Thrombosis of the auricle is easy to treat, but not so that of the atrium. The commissurotomy should be large. The authors prefer a mitral dilator devised by Charles Dubost; this instrument is dangerous in inexperienced hands. The electrocardiogram taken during operation allows of anticipating cardiac disturbances. Excitable hearts can be protected against disorders of rhythm. The result obtained can be judged by left atrial and ventricular pressure readings taken at operation.

Our Present-Day Orientation in Treatment of Malignant Tumors of Middle and Upper Esophagus. A. M. Dogliotti and A. Actis-Dato. Minerva med. 46:451-453 (Sept. 1) 1955 (In Italian) [Turin, Italy].

The authors' conservative treatment for cancer of the middle and upper esophagus consists in introducing into the esophagus a thin polyethylene tube containing radium needles, which, by exerting traction on the tube, are placed at the height of the diseased area of the esophagus. One end of the polyethylene tube projects from the patient's nose, the other protrudes from a temporary gastrostomy through which the patient is fed during the in loco treatment period, which varies from three to six days depending on the patient's tolerance. The tube is then removed, and the esophagus is dilated on the following days with special dilators of progressively increasing size that are passed over a nylon thread guide. The passage of these dilators is greatly facilitated because of the earlier radium treatment, which causes extensive and marked degeneration and necrosis of the cancerous tissue. A second treatment with radium can be repeated, if needed, after 10 days. Fifteen days later the gastric fistula is closed and the patient is able to eat. The authors used this treatment for 22 patients in extremely poor general condition who had cancer of the middle and upper esophagus. The patients have survived the operation for from a minimum of eight months to a maximum of more than three years. Some patients in whom the neoplasm produced restenosis were given the treatment again six to eight months later with good functional results. Roentgen therapy is indicated for those patients whose roentgenograms show, after the radium treatment, extensive diffusion of the neoplasm to the mediastinum, pulmonary hili, or areas far removed from the esophagus on which the radioactive treatment could not exert its action. A radical operation is performed by the authors only in those patients in whom a neoplasm of the middle and upper esophagus has not as yet invaded the nearby organs and in those with cancer of the lower third of the esophagus before regional metastases have taken place.

Bilateral Adrenalectomy in the Treatment of Cancer of the Breast. T. L-Y. Dao and C. Huggins. A. M. A. Arch. Surg. 71:645-657 (Nov.) 1955 [Chicago].

There is evidence that alteration in endocrine balance can produce effective palliation in many cases of mammary cancer. Laboratory studies carried out by the authors demonstrated that both the adrenal cortex and the ovary are capable of secreting hormones that can sustain the growth of mammary cancer. These considerations led to bilateral adrenalectomy and oophorectomy for human breast cancer. Bilateral adrenalectomy alone or in combination with oophorectomy was performed at the clinic with which the authors are connected in 175 patients (173 women and 2 men) with metastatic cancer of the breast since May, 1951. The first 100 consecutive cases are reviewed in this report. The initial operative mortality of 5% has now been reduced to 1.4%. There has been no death in the last 65 cases. The hormonal substitution regimen employed provided adequate replacement. No postoperative death could be attributed to adrenal insufficiency. Adrenalectomy induced significant and prolonged regression of extensive mammary cancers of women who had not responded to earlier treatment with testosterone, estrogen, oophorectomy, and irradiation of the ovaries. Six patients with widely disseminated mammary cancer experienced profound regression of the cancer, which has persisted more than 30 months; one women who had a rapidly advancing mammary carcinomatosis is in good health 49 months after adrenalectomy. The mechanism of regression after adrenalectomy seems to be the withdrawal of critical amounts of hormones. Urinary excretion of estrogen that continued after oophorectomy was abolished after adrenalectomy. Cortisone in the dosage of 100 mg. daily was capable of suppressing hypercalciuria and hypercalcemia in patients with extensive osseous metastases. Remarkable symptomatic improvement occurred, and high levels of serum calcium and urinary calcium excretion often returned to normal after cortisone therapy. There was, however, no evidence of actual cessation of bone destruction in these cases. There was no beneficial effect from the use of sex steroids and cortisone in patients who failed to respond to adrenalectomy or in those who relapsed after a remission. The authors conclude that simultaneous bilateral adrenalectomy in a one-stage operation is a practical therapeutic device for selected cases of advanced mammary cancer and that it will provide relief in a small percentage of patients.

Back Pain Due to Loose Facets of the Lower Lumbar Vertebrae. A. B. King. Bull. Johns Hopkins Hosp. 97:271-283 (Oct.) 1955 [Baltimore].

One of the causes of sudden severe low back pain is the unattached facet. This derangement of the back usually produces episodic attacks of excruciating discomfort, characterized by sudden onset and equally rapid relief of symptoms. The history and physical and operative findings of six patients with this back derangement are presented. The first patient stated that she could flex her back but it was painful to stand erect or to hyperextend her back. When performing these motions, she often felt a "clicking" sensation in the low back. Rest would relieve the back pain, but not completely. Only when she felt "something move" would she feel better. X-ray examination of the back, including anterior-posterior, lateral, and oblique views failed to demonstrate significant pathological changes. It was decided to explore the lower lumbar spine. The intervertebral disks of the L_3, L_4, and L_5 interspaces were normal. Each facet was then inspected and the inferior facet of L_4 was found separated from the lamina. It had rotated medially and become wedged between the lamina and ligamentum flavum. It was easily removed, being attached to the soft tissues of the back by remnants of the ligamentous capsule. Since the operation the patient has been free from the back pain. There was insufficient evidence in this and the other five cases or the literature to resolve the dilemma as to whether these loose facets are ununited fractures or congenital anomalies that have suddenly become symptomatic, or a combination of both. Developmental anomalies probably account for most of them, but trauma may play a part. Some occur after the lamina has been weakened by previous surgery. The diagnosis may prove difficult, because x-ray examination may fail to reveal the lesion and there is no characteristic symptom complex. It is highly suggestive if the patient feels "clicks" or "something moving" in his back and if symptoms come and go rapidly. To differentiate this from the other common back disorders such as herniated intervertebral disk, a free neural arch, or spinal cord tumor, it should be remembered that abruptness of onset and recession of excruciating back pain is unusual with any of these other conditions. None of the patients with loose facets objected to partially flexing the back, in contradistinction to patients with herniated disk or free arch, both of whom find this maneuver difficult and painful. Hyperextension and coming erect produced an exacerbation of symptoms caused by loose facets. The author makes a plea for a surgical exploration of patients with severe local low back complaints, despite "negative" x-ray studies. Excision of the loose facet is a simple and effective treatment.

Polyposis of the Large Intestine: Preservation of the Terminal Segment. W. G. Smith and R. J. Jackman. Am. J. Surg. 90:751-760 (Nov.) 1955 [New York].

Two schools of thought have evolved regarding the optimal therapy for multiple polyposis. One school, favoring the complete extirpation of all polyp-forming mucosa, prefers permanent ileostomy, colectomy, and proctectomy in every case of multiple polyposis. The other school advocates preservation of a terminal segment of large intestine, on the assumption that carcinoma can be prevented in this segment by the eradication of all polyps initially present and by the periodic removal of all new polyps as they appear. The authors are primarily concerned with the management of the preserved terminal segment of the intestine and particularly with the occurrence of carcinoma in it. They review observations on 86 patients so treated at the Mayo Clinic during the 21 year period terminating in 1954. This number included 59 with typical multiple polyposis, 10 with confluent or hyperplastic polyposis, 13 in whom the polyposis was mild in the terminal segment but multiple in the rest of the colon, and 4 in whom the polyposis was mild throughout the colon. Carcinoma has so far developed in 7 of the 86 patients, but it must be remembered that the series is heavily weighted by patients who have undergone operation in relatively recent years. Whatever the incidence may ultimately prove to be, the program of treatment discussed in this paper might be condemned if the alternative form of therapy were without hazard. The fact remains, however, that ileostomy retains many formidable aspects, and its long-term mortality may exceed that which will ultimately be noted in this series of patients. The authors conclude that preservation of the terminal segment of the intestine in multiple polyposis is attended by some risk in terms of development of carcinoma and of subsequent mortality from such carcinoma. This risk is believed justifiable in view of the risk attending the alternative form of treatment. Patients with a preserved terminal segment must be impressed with the gravity of the disease and with the importance of periodic proctoscopic examination. Periodic follow-up examinations should be no more than six to nine months apart and should continue for life. The length of the follow-up interval should be determined by the ever-present danger of cancer and by the severity of the recurrent polyposis. The terminal segment is easily and safely cleared of polyps by fulguration. Periodic examinations of the terminal segment are greatly facilitated by an end-to-end anastomosis.

Colotomy and Coloscopy in the Management of Mucosal Polyps and Cancer of the Colon. M. R. Deddish and R. E. Hertz. Am. J. Surg. **90**:846-849 (Nov.) 1955 [New York].

Colotomy and coloscopy for benign polyps constitutes a technique of multiple colotomies with endoscopic examination of the colonic mucosa. A patient should not be considered a candidate for this procedure until a suspected lesion has been demonstrated by more than one barium enema examination. The procedure is also used in conjunction with resection of the colon. Thorough preoperative cleansing of the colon is necessary. A left paramedian incision is usually adequate. The skin edges are protected from contamination by at least a double thickness of a laparotomy pad, and similar precautions are taken to protect the viscera. The colotomies are made through the longitudinal bands and carried out in the following sequence. If a lesion has been demonstrated within the left colon, the initial incision should be made directly over its base. The lesion is treated and endoscopic inspection of the remaining left colon is done. If no lesion has been detected in the left colon, the most accessible portion of the sigmoid is used. Inspection of the colonic mucosa should be completed through incisions in the midtransverse colon and through a slight enlargement of the cecal defect following appendectomy. A low-lying hepatic flexure may allow complete inspection of the right colon through the transverse colon incision. The colotomy incisions are closed by continuous No. 0000 chromic catgut to the mucosa and interrupted No. 0000 silk to the seromuscular layer. Demonstrated polyps or areas of hyperplasia are removed by suture ligature of the pedicle and excision, by cautery snare electrosurgical technique through the endoscope, or by segmental resection. The authors review observations on 148 patients who underwent colotomy and coloscopy at the Memorial Hospital in New York from 1948 to 1954. Lesions other than those detected radiographically were found in 46.6% of 103 patients with the preoperative diagnosis of polyps of the colon. Thirty-nine per cent of polyps found in addition to those demonstrated by radiography measured more than 1 cm. in diameter. Coloscopy or colotomy and coloscopy was carried out in 32 patients undergoing resection for cancer and additional lesions were found in 47%. Carcinoma was found in approximately one-quarter of all patients examined by colotomy and coloscopy, and atypia in polyps was found in a similar proportion. In seven patients new polyps developed within observed fields. Five of these were given diagnoses within three years. Forty-two per cent of polyps found were located in the sigmoid colon. Colotomy and coloscopy practiced with surgical treatment aids in the diagnosis of polyps and cancer, and affords a measure of cancer prophylaxis.

The By-Pass Operation in the Treatment of Arteriosclerotic Occlusive Disease of the Lower Extremities. E. S. Crawford and M. E. de Bakey. Surg. Gynec. & Obst. **101**:529-535 (Nov.) 1955 [Chicago].

The occlusive process in chronic arteriosclerotic arterial insufficiency of the lower extremities is often segmental in nature with a patent vessel above and below it. Owing to this feature of the disease, it is frequently possible to restore normal circulation in the peripheral arterial bed. This may be accomplished by thromboendarterectomy, excision of the occluded segment with replacement by a graft, or a bypass of the diseased area with a graft. Experience with these methods has disclosed a number of factors, both technical and physiological, that are essential to the success or failure of the operation. The procedure that has been found most effective in avoiding disadvantages and in meeting the requirements for successful results has been the bypassing operation. It consists in the addition of a large collateral vessel around the blocked area to those already present, but without disturbing them; that is, the concept of the bypass operation is based upon the natural response of the arterial tree to an occlusive process, namely, the enlargement of collateral vessels around the obstruction. The procedure is accomplished by the anastomosis of an arterial homograft end-to-side to the patient's artery above and below the occluded segment through two small separate incisions that are connected by a tunnel in the subcutaneous tissues. The advantage of this procedure lies in the fact that it not only permits restoration of a normal pulsatile blood flow into the peripheral arterial bed but also is associated with minimal jeopardy to the existing circulatory and functional capacity of the extremity. The minimal dissection required reduces the risk of injury and thrombosis to the main artery and to its collateral vessels in the region of occlusion as well as above and below this process. Because adjacent structures such as veins, lymphatics, and nerves are not disturbed, complications such as edema, neuralgia, and wound infections are largely prevented. These advantages are demonstrated by the gratifying results obtained. Blood flow through the main arterial channel distal to an occlusion was successfully reestablished in 37 of the 40 extremities in which this technique was employed. Success was determined by arteriography or by the presence of palpable pulses distal to the block which were absent prior to operation. The three failures were in patients whose borderline status was evidenced by small distal patent segments with secondary occlusions below. Particularly significant is the fact that none of these three was made worse by the operation. The clinical condition of the extremity and the postoperative arteriograms were unchanged. The indications for operation in the 37 successful cases were intermittent claudication in 29, gangrene of limited degree in 7, and in one, extensive gangrene.

Glomus Tumors: An Analysis of Twenty-Five Cases. C. Horton, C. Maguire, N. Georgiade and K. Pickrell. A. M. A. Arch. Surg. **71**:712-716 (Nov.) 1955 [Chicago].

The normal glomus is an end-organ apparatus that consists of an arteriovenous anastomosis functioning without an intermediary capillary bed. It consists of an afferent artery that is connected directly to a primary collecting vein by a tortuous anastomotic vessel termed the Sucquet-Hoyer canal. This canal is endothelium-lined and surrounded by smooth muscle fibers and glomal cells that are covered by a delicate collagenous material through which run numerous nonmyelinated nerve fibers. This glomic system is always found in the stratum reticulare of the skin. Glomic structures are distributed widely over the body but are somewhat more numerous on the extremities, particularly on the fingers and toes. The glomus is controlled by the autonomic nervous system, which may explain the pain, temperature changes, and sweating often associated with the glomus tumor. The authors present observations on 25 patients (16 women and 9 men) with glomus tumors. None of these patients had multiple glomus tumors, although multiplicity has been observed. The tumor is most frequently a deep red to purple or blue. It is rarely more than 2 to 5 mm. in size and may be so small as to be missed by inspection or palpation, and only the symptom of severe persistent pain in a minute area may lead to the diagnosis by excision and microscopic examination of the involved site. There is exquisite tenderness to touch. Even slight pressure may cause lancinating or radiating pain. The pain may recur with temperature changes. When the lesion is in the favorite subungual site, the nail is frequently thickened and ridged. Glomus tumors may erode bone. When destruction of the cortex of a terminal phalanx is detected on x-ray examination, the presence of a subungual glomus tumor should be suspected. The glomus tumor is benign, and complete removal of the lesion by surgery is curative. Occasionally pain will persist in the immediate area for a few months postoperatively but will usually resolve without further treatment. Radiation, the injection of sclerosing agents, and periarterial sympathectomy are of no value. The microscopic picture of a glomus tumor resembles a normal glomus except for a decided increase in glomal cells and nonmyelinated nerve fibers. Microscopic examination is advisable, because, if the diagnosis of hemangiopericytoma is established, a more extensive local excision is recommended, as invasion and metastases have been reported in such instances. Before adequate pathological studies had been made on glomus tumors, for which the term glomangioma has been suggested, they were referred to as painful cutaneous tubercles or as angioneuromyomas.

GYNECOLOGY & OBSTETRICS

Evaluation of One Year's Experiences with Culdocentesis at Charity Hospital of Louisiana at New Orleans. L. I. Post and G. Posner. J. Louisiana M. Soc. **107**:406-410 (Oct.) 1955 [New Orleans].

Of the 717 patients who had culdocentesis performed during the year from July, 1953, to July, 1954, 59 yielded nonclotting blood, in 30 patients pus was aspirated, peritoneal fluid was obtained in 527 patients, and 101 yielded no fluid. Of the 59 patients who had nonclotting blood on culdocentesis, 3 were not operated on. The diagnosis proved correct in 53 of the 56 patients operated on. Of the 30 in whom culdocentesis yielded pus, 4 had ruptured tubo-ovarian abscesses treated by immediate surgery; 15 had unruptured cul-de-sac or tubo-ovarian abscesses. The cul-de-sac abscesses were treated by colpotomy and the tubo-ovarian abscesses (which did not "point") were treated medically until they were "cooled down"; then they were treated surgically. Culdocentesis greatly aided in the selection of an antibiotic, since the pus obtained was smeared directly, then sent to the laboratory for culture and sensitivity studies. Three patients had pelvic peritonitis; six had acute salpingo-oophoritis; one had an old asymptomatic pyosalpinx; and one had a dermoid cyst of the ovary. All these patients were treated medically or surgically and there were no fatalities. Clear peritoneal fluid was revealed on culdocentesis in 527 patients, which was considered as normal. No fluid was obtainable on aspiration of the cul-de-sac in 101 patients and these were listed as dry. Culdocentesis is innocuous as shown by the absence of complications in the 717 patients in whom 1,088 "taps" were performed during the year. Physicians can perform culdocentesis at the office.

Vaginal Cytodiagnosis in a General Practitioner's Office. C. L. Fusfeld. GP **12**:109-118 (Oct.) 1955 [Kansas City, Mo.].

The author performed vaginal smears routinely on 2,699 women who came for pelvic examination. Two slides were made on each patient. Both the suction pipet method from the vaginal pool and the Ayre spatula scraping from the cervix were employed. The spatula method was preferred when the cervix was eroded. Commenting on the cost of this program the author estimates that at his office 1,000 vaginal smears were made at a total cost of about $245 and that for those who purchase prepared stains the cost for 1,000 vaginal smears would be about $500. Eleven cases of cancer of the cervix or endothelium were discovered with the aid of the vaginal smear. Five of the 11 patients had adenocarcinoma of the endometrium and 6 had squamous cell carcinoma of the cervix. The author feels that the diagnosis would not have been made except for the routine use of the vaginal smear. The pathological report in each of the six cases of carcinoma of the cervix was "carcinoma-in-situ." The five cases of endometrial cancer were diagnosed as stage 1. In reply to those who maintain that biopsy is the only method by which a diagnosis of cancer can be made, the author points out that biopsy would be done only on a cervix that shows a lesion and a diagnostic curettage only when symptoms of irregular bleeding are present, while the vaginal smear will trigger the process of discovery of an incipient cancer by the detection of suspicious cells in an otherwise symptomless patient. It is only by finding incipient cancer that the death rate will be reduced.

Treatment of Leukorrhea with Douches and "Broad Spectrum" Therapy. E. F. Pena. West. J. Surg. **63**:654-656 (Oct.) 1955 [Portland, Ore.].

Two hundred women with leukorrheal vaginitis largely caused by Trichomonas, and less frequently by Candida albicans, were subjected to the following regimen. After thorough self-douching at home with an aqueous solution of Amfrecin douche powder, containing a wetting agent, protein digestant, acid, carbohydrate, and soothing, cooling antipruritics, the patient was treated at the author's office with insufflation of one ounce of Baculin powder into the vagina through a speculum. Baculin is a proprietary preparation combining fungicides and trichomonacides with a wetting agent, a buffer, a protein digestant, and nutrient carbohydrates. Special care was taken to cover the entire surface of the vagina, cervix, and vulva by a vaginal "ballooning" to iron out the folds and rugae. This invariably brought immediate relief from burning and pruritus. The patient was then instructed to insert two Baculin tablets into the vagina at home each night and morning and close the orifice with a pledget of cotton. Self-administration was interspersed with two visits to the physician's office every week. The alternating office-and-home treatments were continued through at least one menstrual period. In some patients the regimen was followed through two and even three such periods with results that strongly favor such prolonged therapy. During menstruation the douching is sometimes advisable two or three times daily, followed by the usual insertion of tablets and vaginal stopper. It is strongly recommended that coitus be suspended during the entire course of treatment. Microscopic examination of the vaginal secretions revealed that the patient's response was immediate and rapidly progressive. Within a few days 170 (85%) women were completely free from Trichomonas and Candida infection. Another 26 (13%) patients required a slightly longer time. Four patients were therapeutic failures, which were attributed to a lack of cooperation either by the patient or her husband. Only 6 (3%) had a recurrence of the infection and all of these responded favorably to a second course of treatment. In view of these excellent results, the same therapy was used on patients with senile, nondiabetic vaginitis and was also used for prepartum and postpartum hygiene. It was likewise adopted as a preoperative and postoperative measure. In all cases the results were similarly gratifying.

The Use of Hormones in the Management of Pregnancy in Diabetics: Report to the Medical Research Council by D. D. Reid. Lancet **2**:833-836 (Oct. 22) 1955 [London, England].

The Medical Research Council of Great Britain appointed a committee to conduct a controlled clinical trial designed to assess the effect, if any, of treatment by the oral administration of stilbestrol and ethisterone upon the fetal survival rate in pregnant diabetic women. Nine centers were asked to cooperate in a centrally planned and controlled investigation. Comparable groups of pregnant women with diabetes but without cardiovascular complications attending the nine hospitals were stratified by age and parity and randomly divided into "hormone-treated" and "non-hormone-treated" groups. One group received tablets containing graduated doses of ethisterone and stilbestrol; the others were given inert but otherwise identical tablets. Hormone therapy commenced before the end of the 16th week of pregnancy, and up to the end of the 19th week the women received daily by mouth 50 mg. of stilbestrol and 25 mg. of ethisterone; to the end of the 23rd week, 100 mg. and 50 mg. of the two preparations, respectively; to the end of the 27th week, 100 mg. and 75 mg., respectively; to the end of the 31st week, 150 mg. and 125 mg., respectively; and from the 32nd week until delivery, 200 mg. of stilbestrol and 250 mg. of ethisterone. In all other respects the management of pregnancy was the same. All the patients, 76 hormone-treated and 71 non-hormone-treated, were followed for at least six months after delivery. The frequency of stillbirth and neonatal death in the two groups proved to be almost the same, with a total death rate of viable fetuses of 24% in the hormone-treated group and 26% in the other. Although birthweights were on the average equal, there were four congenital malformations in the treated group and seven among the controls; the frequency of malformation associated with fetal loss was, however, the same, being three in each group. Diabetic control during pregnancy was equally good in the two series, and the incidence of hydramnios, edema, and albuminuria was equal. There was no significant excess in the incidence of toxemia in the non-hormone-treated group, and the trends in blood pressure readings during pregnancy were identical. Assays designed to measure the urinary output of pregnanediol and chorionic gonadotropin were carried out. Although the methods of pregnanediol estimation are not specific, the assay results suggest that either one or the other, or both, of the oral preparations given were absorbed but that this had no effect on the pattern of hormone excretion associated with fetal loss. From these observations it is concluded that oral stilbestrol and ethisterone, in the doses here prescribed, do not reduce fetal mortality in diabetic patients and have little, if any, beneficial effect on maternal health in pregnancy.

PEDIATRICS

Anoxia in the Acute Respiratory Infections of Childhood: Its Recognition and Treatment. B. Morrison. Lancet **2**:737-740 (Oct. 8) 1955 [London, England].

As the result of the control of bacterial infections by antibiotics, the clinical picture of acute respiratory infections in infants and children has undergone a considerable change. The toxic form of illness with hyperpyrexia and repeated convulsions that in the past often had a fatal outcome is now comparatively rare; however, anoxia has become more prominent and is now the main cause of death, largely because bronchiolitis, which is becoming increasingly common in infants under the age of one year, does not respond to antibiotic therapy and often produces a suffocative picture. The author studied the problem of anoxia as part of an investigation of severe respiratory infections in 108 infants and children. This report presents the results of correlating oxygen saturation estimations, clinical data, and response to oxygen therapy. It was found that direct estimations of arterial oxygen saturation are difficult and time-consuming, and as a method of assessing the need for and controlling oxygen therapy they are impracticable in routine hospital work. In this study, the author demonstrates the close relation between restlessness and anoxia and also the fallibility of relying on the child's color, at least in the lesser degrees of anoxia. The behavior of the infant emerged as the most reliable clinical guide in the control of oxygen therapy. Before making a diagnosis of anoxia it is necessary to exclude restlessness due to hunger, discomfort, loneliness, or pain. In the presence of obvious respiratory distress, restlessness is usually due to anoxia. In some of the children, the standard oxygen tent, giving an oxygen concentration of from 40 to 45%, was inadequate for the relief of anoxia, and higher concentrations were required. These were supplied by a small tent, face-mask, or special oxygen box designed to give up to 90% oxygen. With the use of these higher concentrations when necessary, the oxygen lack was relieved in 31 out of 32 children.

Coarctation of the Aorta with Patent Ductus Arteriosus. W. B. Seaman and D. Goldring. J. Pediat. **47**:588-598 (Nov.) 1955 [St. Louis].

The authors report on 12 infants with coarctation of the aorta associated with patent ductus arteriosus who had roentgenographic examinations and in whom the diagnosis was confirmed by surgical exploration or autopsy. In five patients an angiocardiogram was done. Four illustrative cases are described in a 7-month-old baby girl and in three baby boys aged 8 days, 6 weeks, and 3 months, respectively. In the girl the coarctation of the aorta was distal to the aortic mouth of the ductus arteriosus, while in the boys it was proximal to it. Coarctation of the aorta associated with a patent ductus arteriosus is not a rare congenital anomaly and frequently results in cardiac failure and death. In the baby girl chest roentgenograms revealed moderate cardiac enlargement with elevation and rounding of the apex suggesting right ventricular enlargement. Pulmonary vascular engorgement was present, suggesting hypertension in the lesser circulation. In the three baby boys, conventional roentgenograms of the chest also revealed moderate to pronounced right ventricular cardiac enlargement and dilatation and engorgement of the pulmonary vessels. Although the diagnosis may be difficult, a correct clinical diagnosis can be made by the use of flush blood pressure technique, blood oxygen studies, and conventional roentgenograms. Angiocardiography is the most accurate method of differential diagnosis, but it is not without hazards in infants who are in critical condition. Two immediate deaths occurred in the five patients subjected to this procedure, both in cyanotic infants with a coarctation proximal to a patent ductus arteriosus allowing a right-to-left shunt. If the coarctation is distal to the patent ductus arteriosus, the hazard of angiocardiography may be less, but this diagnostic method should be used only if the clinical diagnosis is not firmly established. The difficulties in diagnosis are minor compared with the difficulties observed in the therapeutic approach. The prognosis for most infants with coarctation of the aorta associated with patent ductus arteriosus is poor. Medical management was ineffective and all patients so treated died. Five died during an attempt at surgical correction. The authors still feel that there is more hope in surgical intervention and, in several patients reported on by other workers, resection of the coarctated segment and division of the patent ductus arteriosus was successfully performed and was followed by marked clinical improvement.

The Treatment of Tuberculosis of the Superficial Cervical Lymph Nodes in Children. E. L. Kendig Jr. and T. M. Wiley Jr. J. Pediat. **47**:607-613 (Nov.) 1955 [St. Louis].

Since 1947, 12 boys and 13 girls between the ages of 17 months and 10 years with tuberculosis of the superficial cervical lymph nodes were treated at the Medical College of Virginia Hospitals. Excision of the involved nodes was carried out in all 25 patients, 14 of whom were given isoniazid alone or combined with other drugs; streptomycin or dihydrostreptomycin was given alone or in combination with other drugs to 16 patients; antimicrobial therapy was not combined with surgical excision in 4 patients. Tonsillectomy was performed in 13 patients, but there was little evidence that the tonsils were the portal of entry of the tuberculous infection. Results obtained with these various types of treatment suggest that progressive tuberculosis of the superficial cervical lymph nodes in children should be treated as follows. Complete excision of the node or nodes and the additional use of isoniazid and aminosalicylic acid (PAS) for at least one month preoperatively and for a two to three month period after surgical intervention would appear to be the ideal approach to the treatment. In this manner, an accessible focus of tuberculosis can be readily eradicated and any active tuberculous process may have a reasonable course of antimicrobial therapy. While it may be true that the primary tuberculous focus is not present in the tonsils or adenoids in this condition, it is also true that an attack of tonsillitis may cause activity of the tuberculous process in the regional lymph node. Whenever there is the slightest question of tonsillar disease, therefore, tonsillectomy and adenoidectomy are indicated. If purulent drainage from the nodes is already present or if the area of liquefaction is so large that satisfactory excision of the area cannot be effected, incision and drainage, with local use of streptokinase and streptodornase according to Hazlehurst's technique appears to be indicated. Even in this instance, however, later excision of the area would seem wise. In addition, isoniazid and aminosalicylic acid therapy for several months during and after the healing process appears to be indicated.

Progressive Vaccinia Associated with Agammaglobulinemia and Defects in Immune Mechanism. P. J. Kozinn, M. M. Sigel and R. Gorrie. Pediatrics **16**:600-608 (Nov.) 1955 [Springfield, Ill.].

In 1947 there were 45 cases of generalized vaccinia among five million persons vaccinated against smallpox in New York City, an incidence of 1:110,000 vaccinations. No age group was exempt. Thirty-eight persons, that is, 84% of those affected, had eczema preceding the generalized vaccinia. In rare instances following vaccination, diffuse cutaneous lesions continue to appear for a period of several weeks and show no evidence of healing. The later vaccinal crops do not undergo an accelerated reaction—a process that would occur if immune bodies were formed by the patient. The original vaccination continues to enlarge until it reaches an unusual size. Such a reaction, with fatal outcome, occurred in a 3-month-old male infant. Virological and histological studies indicated that the lesions were caused by vaccinia virus. The disease was associated not only with defects in the immune mechanism but also with agammaglobulinemia. Despite electrophoretic determination of the latter condition, the serum yielded positive results in the hemagglutination inhibition and neutralization tests, though not in the complement fixation test. Some of the reactive substances in the serum, especially the neutralizing substances, were probably antibodies passively acquired. Pathologically, the disease was characterized by lymphopenia, absence of healing, and lack of inflammatory response. The infant was treated unsuccessfully with gamma globulin and plasma from recently vaccinated donors, corticotropin and cortisone, and various antibiotics. Successful treatment of this condition with antivaccinal gamma globulin has recently been reported.

Vaccinia Gangrenosa Treated with Hyperimmune Vaccinal Gamma Globulin. G. J. Barbero, A. Gray, T. F. McNair Scott and C. H. Kempe. Pediatrics *16:609-618* (Nov.) 1955 [Springfield, Ill.].

The case of a 5-year-old boy with progressive necrosis of the site of a primary vaccination on the left deltoid area is described. The term "vaccinia gangrenosa" is suggested to distinguish such cases from other types of generalized vaccinia. By the time the boy was first seen in hospital, four months after the vaccination, there were metastatic lesions to other areas of skin on the arm, chest, and scalp, and to the shaft of the fourth metacarpal bone of the right hand, where an osteomyelitis developed. Vaccinia virus was isolated from the necrotic lesion of the skin of the arm and from the bone lesion. No circulating antibodies to vaccinia virus could be found in the blood stream. The lesion showed healing immediately on treatment with hyperimmune vaccinal gamma globulin obtained from recently vaccinated adults. After a total of five doses given over a six week period, vaccinia virus was no longer detectable in the skin lesion. All primary and metastatic lesions were completely healed by four and a half months after the first treatment. The boy appears to be the first patient to survive this complication of routine smallpox vaccination. His case is also noteworthy in that the osteomyelitis that developed was shown to be due to vaccinia virus.

DERMATOLOGY

Local Cold Injury: A Report of Sequelae. J. C. Shafer and A. W. Thompson. A. M. A. Arch. Dermat. **72**:335-347 (Oct.) 1955 [Chicago].

The authors summarize observations on 54 men with residuals following cold injuries. A history compatible with injury due to trench foot or frostbite, or substantiation of these diagnoses by hospital records, was obtained in all patients. Some had a history of trench foot incurred during 1944-1945 in Europe, or of the ground type of frostbite incurred in Korea or in winter military maneuvers elsewhere. In only six patients was tissue loss sufficient to require surgical procedures, such as skin grafting or minor bone amputations. The patients requested treatment for sequels of their cold injury from six months to nine years after cold injury. Pain in the involved sites was a prominent symptom in 48 patients; it took the form of aching, burning, sharp pain, and, rarely, shooting pain and cramping. Occasionally, several types of pain were present. Pain was aggravated by prolonged standing and walking, exposure to cold, and certain types of footgear. Two patients with previous amputations had causalgia syndromes in the stump areas after cold injury. Hyperhidrosis was reported by 44 patients; among two-thirds of these it was regarded as one of the major causes of disability. Bromhidrosis was noted by three. Other complaints were drenching sweat requiring frequent changes of footwear; increased reactivity to cold; paresthesias, predominantly numbness and tingling or a pins-and-needles sensation; dermatitis; and color changes, either cyanosis or rubor, of the feet. Intermittent swelling of the feet and ankles was described by 19 patients. Treatment was given to 33 patients, the remaining 21 having been admitted only for evaluation prior to retirement from the military services, cold injury residuals being either the primary or contributing cause of disability. Local measures for treatment of hyperhidrosis proved of little value. Orthopedic treatment was prescribed in 12 patients. Metatarsal bars, Thomas heels, convalescent shoes, or shoe padding were of value in alleviating symptoms. Physical therapy, whirlpool baths, and various types of active and passive exercise were of value. Psychiatric management was required by some individuals. Sympathectomy was carried out in eight patients. During the periods of follow-up, sympathectomy controlled hyperhidrosis in these eight patients; of six with dermatitis, three failed to improve. In four patients in whom pain was a prominent symptom, little change was noted. On the whole, management of these patients is inadequate, although symptomatic relief of varying degree can be obtained in some. It is suggested that a more critical evaluation of the neurological involvement would be of importance in further investigations of late cold-injury syndromes.

The Treatment of Hemangioma Chiefly by Irradiation. G. E. Pfahler. A. M. A. Arch. Dermat. **72**:425-437 (Nov.) 1955 [Chicago].

The author reports on a follow-up of 836 cases of hemangioma in private patients treated by him during the past 35 years. If the proper method is applied, practically all these lesions can be cured except the "naevus flammeus" and some of the visceral lesions. He discusses the treatment of the following lesions: cavernous hemangioma, which he divides into two groups (1) the strawberry type, which is superficial, and (2) the large cavernous type; tumorous cavernous hemangioma; the hemangioma of the vertebra; hemangioma of joints; and hemangioma of the larynx. On the basis of his own experiences in the treatment of these lesions confirmed by study of the literature, he feels that all of these lesions should be treated as early in life as is practical, preferably within the first few months. The great majority are best treated by irradiation. For most of the lesions, the gamma radiation from radium will give the most satisfactory cosmetic results, but at times this radium treatment should be supplemented by high-voltage x-rays, and, at times, the high-voltage x-ray treatment is preferable to any other. Sometimes treatment of these lesions is best supplemented by either electrosurgery or scalpel surgery. Each case presents an individual problem, and the treatment or combination of treatments should be adapted to the conditions present. It is best to treat the larger lesions by irradiation before caustics have been used or ulceration has taken place. In that way scarring can nearly always be avoided.

OPHTHALMOLOGY

Myopia of Prematurity. M. C. Fletcher and S. Brandon. Am. J. Ophth. 40:474-481 (Oct.) 1955 [Chicago].

The development of the eyes in 462 premature infants, 136 of whom had retrolental fibroplasia, was studied over the past four years. These infants were found to have a high and fluctuating myopia during the neonatal period, more exaggerated in the small infants with immature eyes and in those infants in whom retrolental fibroplasia developed subsequently. Myopia observed early in retrolental fibroplasia may remain as a residual of the disease. The mechanism of the production of myopia in premature infants appears to be associated with the immature eye and the underlying metabolic disturbance in retrolental fibroplasia. There probably exists an abnormality in the metabolism of the media of the developing eye, which produces changes in the axial length, corneal curvature, and index of refraction. Any or all of these combined could produce an increased myopia. The abnormal extrauterine existence of the prematurely born infant may be a causal factor in such abnormalities in the metabolism of the media of the developing eye.

Sulfonamides as a Cause of Toxic Amblyopia. R. G. Taub and R. W. Hollenhorst. Am. J. Ophth. 40:486-490 (Oct.) 1955 [Chicago].

In the 10-year period from 1944 to 1953, inclusive, four patients at the Mayo Clinic had visual loss from toxic amblyopia related to sulfonamide therapy. The total amount of the sulfonamide preparations given to the first three patients was not great, being 5.0, 7.0, and 3.5 gm., respectively; the fourth patient received 110.5 gm. The first patient was given a combination of sulfamerazine, sulfamethazine, and sulfadiazine; the second received an unknown sulfonamide; the third was treated with sulfathiazole; and the fourth received Sulfasuxidine and sulfadiazine. Sulfonamides were not detectable in the blood of two of the patients after visual loss had occurred; the test was not done on the other two. Loss of vision occurred in the first patient on the 6th day of administration, in the second patient 3 days after completion of 2 days of therapy, and in the fourth 2 days after completion of 18 days of treatment. The vision of the first patient returned to normal in about four months, that of the second could not be followed, that of the third returned to 6/6 in one month, and that of the fourth improved to 6/12 in the right eye and to 6/10 in the left eye 12 days after the onset of the ocular disturbances. It is questionable whether or not the fourth patient actually had bilateral toxic neuritis. Certain aspects suggested the possibility of some type of bilateral lesion of the occipital lobe, either thrombotic, embolic, or metastatic, rather than toxic optic neuritis. The authors reach the conclusion that toxic neuritis involving the optic nerves can result from the systemic use of the sulfonamides. The loss of vision is probably caused by idiosyncrasy or allergy to the drug rather than overdosage. Treatment other than discontinuance of administration of the sulfonamide apparently is not necessary, as the three patients who could be followed up recovered spontaneously. With one exception, patients reported on in the literature likewise recovered their vision.

Malignant Edematous Exophthalmos. M. Albeaux-Fernet and J. D. Romani. Semaine hôp. Paris 31:3144-3153 (Oct. 14) 1955 (In French) [Paris, France].

Malignant exophthalmos is characterized by true protrusion of the eyeball (in contrast to false exophthalmos due to widening of the palpebral fissure). The protrusion is monstrous and usually bilateral. Edema and inflammation are present; the conjunctivas are injected. There is paralysis of convergence and of lateral movement. The patient complains of photophobia and severe tension in the orbits and frontal region, perhaps even in the entire cranium. In addition to these phenomena, there is almost always pretibial edema, sometimes accompanied by the severe skin lesions known as "circumscribed pretibial myxedema," which can be treated by injections of corticotropin. The exophthalmos is progressive and occasions complications, not through its severity, but through the rapidity of its development. Papilledema may be accentuated, causing hemorrhages and exudates. The two worst local complications are corneal ulceration and optic neuritis. The last stages of the disease are characterized by fever, intense headache, vomiting, diarrhea, loss of weight, and torpor leading to a comatose state interrupted by periods of agitation or carphology, severe elevation of temperature, and death. Sixty-five per cent of cases of malignant edematous exophthalmos occur in men. The most frequent circumstance of appearance is regressing hyperthyroidism, especially when the disease has been treated by thyroidectomy. The condition may also be seen in developing hyperthyroid disease or in old disease when a state of thyroid exhaustion has established itself. Myxedema, especially that of the menopause, is also a cause. Pathologically, the lesions consist of edema in the different elements, cellular infiltration, degeneration of the connective tissue leading to fibrosis, and degenerative myositis with atrophy of fibers, disappearance of striation, surcharge of fat droplets, and perivascular round-cell infiltration. The lesions are comparable to those produced experimentally by injection of thyrotropin. It is true that this hormone of the anterior pituitary causes edematous exophthalmos through its elective action on the retro-orbital tissue, but there is also a systemic process in the disease, which is manifested by mobilization of fats (atrophy of the usual fat deposits, elevation of plasma fats, and abnormal deposition in the liver, muscles, and kidneys). The authors discuss the complicated pathological mechanisms involved, pointing out that recent work by Dobyns and coworkers has isolated an exophthalmos-producing substance (EPS) distinct from the thyroid-stimulating hormone. Treatment of malignant edematous exophthalmos is often surgical decompression of the orbit. Other measures are aimed at destroying or inhibiting the hypophysis or its anterior lobe and still others, at inactivating thyrotropin.

Results of Surgical Hypophysectomy in a Case of Malignant Edematous Exophthalmos. M. Albeaux-Fernet, J. Guiot, S. Braun and J. D. Romani. J. Clin. Endocrinol. 15:1239-1246 (Oct.) 1955 [Springfield, Ill.].

The authors present the history of a 56-year-old woman who had severe protrusion of the eyeballs, even though they were buried in palpebral edema. The patient was considered to have hyperthyroidism, in spite of the absence of marked enlargement and vascularity of the thyroid. Her extended fingers showed a slight tremor, the electrocardiogram showed sinus tachycardia, and the basal metabolic rate was high. The ocular signs were thought to indicate the presence of hyperpituitarism as well as hyperthyroidism, and for this reason a rapid cure of the hyperthyroidism was considered inadvisable. Complete rest with sedation and treatment with vitamin A and an antithyroid drug were prescribed, and under this treatment the woman became more calm and palpitation and precordial discomfort subsided. The exophthalmos at first remained unchanged, but later it progressed and blepharoconjunctivitis with tearing and injection of sclera developed. The globes became harder, and the ocular tension increased. An attempt was made to inhibit the overactive pituitary with x-ray therapy, but the exophthalmos increased. Treatment with thymus extract was tried, on the basis of evidence that thymus extract neutralizes the thyroid-stimulating hormone. Although this treatment was followed by a slight, temporary reduction in the exophthalmos and in the basal metabolic rate, later the exophthalmos progressed again, despite the continuation of treatment. In order to counteract the malignant exophthalmos, a hypophysectomy was now performed, and this resulted in a marked amelioration. Histological examination of the pituitary tissue showed an increase in the numbers and in the secretory activity of cells that are considered to be the site of production of the thyroid-stimulating hormone.

OTOLARYNGOLOGY

Ossifying Fibroma of the Paranasal Sinuses. E. M. Skolnik and E. J. Fornatto. Ann. Otol. Rhin. & Laryng. 64:689-700 (Sept.) 1955 [St. Louis].

Ossifying fibroma, a variant of the intraosseous form of fibroma, has been referred to as "sarcoma," "sarcoma psammosum," "sarcoma osteogeneticum," or "psammoma." The absence of nuclear monstrosities, mitotic figures, and protoplasmic anomalies has induced most recent authors to consider these growths as benign tumors and designate them as fibromas. On clinicopathological grounds, ossifying fibroma has been regarded as a variant of the monostotic fibrous dysplasia of Lichtenstein. Four cases of ossifying fibromas involving the paranasal sinuses are reported. The first patient had an ossifying fibroma of the maxillary sinus; the second had an ossifying fibroma of the maxilla involving the antrum; the third a cystically degenerated ossifying fibroma of the antrum; the fourth a cystic ossifying fibroma of the supraorbital region involving the walls of the frontal sinuses. Ossifying fibromas of the paranasal sinuses have a rather insidious development. They are generally unsuspected until expansion of the bony walls of the sinuses calls attention to their presence. However, cases of persistent or frequently recurrent "sinusitis," which fail to respond to the usual treatment, must receive a thorough evaluation and radiological study. The first sign of disease is generally a local swelling associated with local tenderness; displacement of the eye and functional disturbances may be present. Ossifying fibromas are solitary lesions that do not metastasize and when completely removed do not recur.

However, by virtue of extensive growth and pressure on surrounding vital structures, they can be clinically malignant, though histologically benign. Radiologically, ossifying fibromas are evident early as small, round swellings involving a cranial or facial bone and eventually projecting into the sinuses. However, because of the nonspecific character of the roentgenologic aspects, many different lesions must be considered in the differential diagnosis. Massive fibromas may be present as benign expanding tumors with pressure atrophy of a part or whole of the sinus walls. In some cases pressure atrophy can cause lesions resembling destruction, and the differentiation from a malignancy may be impossible on radiological grounds alone. In these cases biopsy must be resorted to. In treatment, roentgen therapy has proved of limited value, and, in view of the benign character of the ossifying fibroma, massive resection and sacrifice of facial bones, with their accompanying disfigurement and high mortality, are not justified, but the growth should be removed as thoroughly as possible. If the lesion recurs, further resection is indicated. On histological examination, the uniformity of the nuclei and lack of mitosis demonstrate the benign nature of the ossifying fibroma. The variability in the amount of fibrous and osseous tissue, the different character of the fibrous stroma and fibrous cells, the presence of osteoid tissue and of islands or trabeculae of bone, the degree of layering of osteoblasts and osteoclasts around bone, or the presence of giant cells scattered throughout the stroma not only are expressions of the continuous transformations these tumors undergo during their growth but probably reflect an advancing histological maturity parallel with increasing age of the patient.

The Cervical Spine and the Globus Syndrome. L. F. Morrison. Ann. Otol. Rhin. & Laryng. 64:753-765 (Sept.) 1955 [St. Louis].

The complaint of "a lump in the throat" is a common one. The otolaryngologist confronted with this problem remembers that in the differential diagnosis he must consider postcricoid carcinoma, carcinoma of the pyriform fossa, stricture, Plummer-Vinson syndrome, enlarged styloid process, pharyngeal pouch, pharyngeal paralysis, and other conditions. After these have been ruled out the complaint is often regarded as of a "neurotic" origin and the diagnosis of "globus hystericus" is made. The author shows that pathological changes in the cervical spine are one of the tangible causes of the globus syndrome. The complex neuroanatomy of the cervical spine area readily explains peripheral nerve manifestations in regions from the diaphragm to the top of the head. A tentative diagnosis of osteoarthritis of the cervical spine may be made from the clinical history of patients with the globus syndrome. Roentgenograms will confirm or negate the tentative diagnosis. The relief of symptoms following simple therapeutic measures will substantiate the diagnosis. Cervical arthritis should be ruled out as a tangible cause for the complaint of "a lump in the throat" before the patient is advised to forget about the discomfort or is sent for psychiatric evaluation and treatment.

PATHOLOGY

Diverging Sex Morbidity Trends in Cancer of the Mouth: A Hospital Morbidity Study. M. H. Russel. Brit. M. J. 2:823-827 (Oct. 1) 1955 [London, England].

In northwestern England, that is, in the region of Manchester, which has a population of approximately 4,500,000 (47% men, 53% women), morbidity rates for cancer of the mouth in each sex were calculated for the periods from 1935 to 1939 and from 1945 to 1949. The figures for men in the two periods were 1,077 and 777, respectively, and for women 119 and 209, respectively. Thus the trends over a decade show a marked decrease in the incidence of cancer of the mouth in men, and an increase in the disease in women. Although the incidence of the disease has decreased in men, they have previously been shown to exhibit a worse response to treatment and to be more prone than women to develop metastases; in women there is greater vulnerability so far as incidence is concerned, but a higher rate of recovery and of resistance to dissemination of the disease. The age-specific trends for males, which yield a lowered incidence of varying degrees throughout the entire range from 45 years upward, suggest the removal or diminution of etiological factors. Two factors could conceivably be partly responsible, namely, improvements in the control of syphilis and in the incidence of oral leukoplakia. It is conventional to regard the incubation period for cancer as 20 years. Reference has previously been made by other investigators to the hypothesis that, in men, local aggravation is a relevant factor in susceptibility to the disease but that, in women, a systemic factor, such as microcytic anemia, is responsible. The region studied was predominantly a textile area until about 1935 when, as a result of severe and prolonged trade recession, other industries were gradually developed. Social conditions from about the middle of the 1920's cannot be ignored and may have some significance.

Optical Density of Serum in Cancer: Comparison with Findings in Patients Having Other Diseases and in Normal Persons. J. A. Quinn, S. A. Katz and A. E. Rappoport. Am. J. Clin. Path. 25:1128-1147 (Oct.) 1955 [Baltimore].

While investigating an immunologic reaction for the diagnosis of cancer, the authors found the end-points to be indefinite, and so they attempted to measure the reaction objectively, by means of the optical density scale of the Coleman Jr. spectrophotometer. The results were varied and unrelated, but it was noted that there were distinct differences between the optical densities of serum from normal persons and from patients with cancer. Accordingly, a systematic investigation was undertaken to determine whether this difference was apparent or real and whether it could be used as a cancer screening test. Studies were made (1) on seemingly well persons: blood donors, applicants for premarital serologic examination, persons undergoing routine physical examination, and persons hospitalized for correction of structural defects; (2) on pregnant women and on patients having diseases other than cancer; and (3) on patients with cancer. Serums from 1,736 persons were examined. A specimen of 5 ml. of venous blood is obtained in the fasting state or four hours after the last meal. The optical density of the serums must be tested within six hours after venipuncture. Optical density is determined at room temperature (22 to 25 C), using a Coleman Jr. spectrophotometer with an adapter for 12 by 75 mm. cuvets. After initial testing at room temperature, the specimens are refrigerated for one hour at 2 to 10 C in the original cuvets. After refrigeration, the specimens are allowed to stand at room temperature for five minutes. The testing procedure is then repeated to obtain a second measurement. The reading of the room temperature is subtracted from the refrigerated reading and a numerical difference is obtained. The authors found that there are specific differences in the optical density of serum between normal and diseased persons. Negative reactions were obtained in 466 (97.7%) of 479 normal persons and in 817 (86.3%) of 944 noncancerous patients. False-positive results were encountered chiefly in persons with acute and chronic inflammations and in pregnancy. There was a strong correlation between the result of the test for optical density and the occurrence of malignant neoplasms. In 313 patients with histologically proved cancer, the test gave a true positive result in 282 (90.1%). False-negative results were encountered predominantly in patients with anaplastic, generalized metastatic, or terminal cancer. The serum factor responsible for these differences seems to diminish in optical density in inverse proportion to the growth and spread of cancer.

Cytologic Studies on Pleural and Peritoneal Fluids. J. H. Childers. Texas J. Med. 51:674-678 (Oct.) 1955 [Austin, Texas].

Fluids removed from the pleural or peritoneal cavities were observed with regard to color, opacity, specific gravity, volume, and presence of fragments of tissue or coagulability. For cytological examination, sufficient stock formaldehyde (40%) was added to make a 10% solution. After these solutions were mixed, an interval of 4 to 20 hours was allowed for fixation. A cell block was secured by centrifuging the specimen to concentrate the sediment. These cell blocks, which varied from 2 to 10 mm. in diameter, were then wrapped in filter paper and processed with the routine surgical tissues. Paraffin blocks were sectioned at 5 μ thickness, stained with hematoxylin and eosin, and mounted. Special stains were used when indicated. Each specimen was reported as not having malignant cells, having atypical cells, or having malignant cells. In the event that irregularly shaped cells with degenerative changes or suggestive arrangement of cells were encountered but a definite diagnosis of malignant cells was not justified, the specimen was reported as having "atypical cells," and study of additional fluid specimens was recommended, neoplastic cells often being discovered in later specimens. Studies were made on 528 fluids from 345 patients. Of 333 pleural fluids, 76 fluids from 55 patients contained atypical or malignant cells. Histological confirmation of a malignant neoplasm was secured by surgical excision of tissue for biopsy from 10 cases and autopsy studies of 6 cases. Twelve additional patients with atypical or malignant cells in the pleural fluid died at home, and no postmortem examination was performed. A false diagnosis of malignant cells was made in two pleural fluids from two patients, both of whom had arteriosclerotic heart disease with congestive failure. In 8 of the 55 patients, malignant cells were demonstrated in the pleural fluid of patients not previously having a clinical diagnosis of malignant neoplasm. Of 195 peritoneal fluids from 141 patients, 61 specimens from 43 patients contained atypical or malignant cells. In this group histological confirmation of a malignant growth was secured from surgically excised tissue in 6 cases and by autopsy studies of 10 additional cases. Seven additional patients in this group died at home, and no postmortem examination was secured. No false-positive diagnoses were made on the basis of the studies on the peritoneal fluids.

RADIOLOGY

Unspecific Bronchostenoses and Bronchiectases Mainly from Roentgenologic Viewpoint. T. Denstad. Tidsskr. norske lægefor. 75:637-639 (Sept. 15) 1955 (In Norwegian) [Oslo, Norway].

Bronchostenoses may originate through pressure from the outside, often from enlarged lymph nodes, a form most frequently seen in childhood. A large aortic aneurysm may also compress the bronchi. There may be localized thickening of the bronchial wall with resulting stenosis, presumably after an acute bronchitis, where perhaps traumatization of some kind causes a local reaction with inflammation of the mucous membrane. A chronic stage sometimes results, with formation of granulation tissue, causing hemoptyses, atelectases, and bronchiectases. The process, while reversible, may lead to scar formation with permanent changes. If the stenosis is situated in a large bronchus, it can often be established by a good ordinary roentgenogram. Bronchiectases are after tuberculosis the most common of the chronic pulmonary affections. Clinical diagnosis may be difficult. Congenital bronchiectases are rare and are due to congenital weakness of the bronchial wall. Acquired bronchiectases are more frequent than generally supposed, especially in the milder degrees, and should be borne in mind in chronic bronchitis, asthma, and emphysema, also in pneumonia with delayed resolution, bronchopneumonia with bleeding, and in chronic sinusitis. Bronchiectases most often originate in childhood. The most important causes are bronchostenosis with atelectasis and infection. Roentgen examination and planigraphy often give good results for diagnosis, but for a satisfactory survey of the conditions bronchography is required. It is important to determine whether the bronchi in the other lobes are normal, particularly if surgical treatment is considered. Slight bronchiectases can be revealed only by bronchography. Bronchiectases are especially to be suspected in asthma with purulent expectoration, hemoptysis, and recurring infections. The examinations should be carried out only when the patient is in a good condition. The roentgenologist's task is to establish the diagnosis of bronchiectasis so early that the patient's age and general condition and the accompanying pulmonary complications do not contraindicate lobectomy where this is otherwise possible. The prognosis is unfavorable without surgical treatment. Bronchography is called for on the slightest suspicion of bronchiectasis, provided there are no contraindications. This holds also for bronchostenosis, if bronchoscopy with biopsy does not give satisfactory information. It is urgent first and foremost to exclude or establish the presence of bronchial cancer.

Roentgen Therapy of Subdeltoid Tendinitis and Bursitis. M. Shoss and T. G. Otto. Missouri Med. 52:855-863 (Nov.) 1955 [St. Louis].

Bursitis of the shoulder may be either acute or chronic. The pain in acute cases is severe and incapacitating; in chronic cases, it is more tolerable but may be troublesome for months. Restriction of movement, which is most pronounced in abduction and rotation, may lead to a frozen shoulder. Patients with acute bursitis are severely ill and should be given treatment to relieve their pain and disability as soon as possible. Many forms of therapy have been tried with varying success. Novocaine infiltration and needling of calcific deposits are often effective; hydrocortisone injections are being used with good results in an increasing number of cases; and surgical excision of calcifications is sometimes the treatment of choice in long-standing disease. The greatest interest, however, has centered on x-ray therapy, which not only produces excellent results but is easy, rapid, and economical inasmuch as it can usually be given as an outpatient service. Comparable results have been obtained in various series regardless of the technical factors used. Intermediate range therapy, however, has often been advocated and was employed by the authors in 159 patients. The technical factors were essentially the same in all cases, with 140 kv., 15 ma., 50 CM-TSD, ¼ mm. copper and 1 mm. of aluminum (HVL 0.5 mm. copper). Most of the patients received daily treatments of 150 r in air through alternate anterior and posterior 15 by 15 mm. ports to the shoulder on alternate days for a total of six days. Three patients had bursitis first in one shoulder and then, 6 to 17 months later, in the other. Six other patients had recurrences in the same shoulder from 10 to 46 months later. Most cases will respond to x-ray therapy completely in from three to four weeks, but in some the improvement will take place slowly over a period of about three months. Recovery, as might be expected from the nature of the underlying process, which is one of degenerative change, is usually slower in chronic cases. Follow-up of the authors' patients showed satisfactory results, i. e., no pain or only occasional pain, in 84 (95.4%) of the 88 cases of acute bursitis and in 56 (86.1%) of those that were chronic.

Rounded Intrathoracic Lesions. D. W. Springer, P. E. Geiger and H. T. Langston. Am. J. Roentgenol. 74:827-849 (Nov.) 1955 [Springfield, Ill.].

The authors describe 20 cases of varied, rounded intrathoracic lesions in men between the ages of 24 and 63 years. These patients were seen in the course of 10 months on an active thoracic surgical service. The nature of these lesions could not definitely be ascertained by a very comprehensive work-up, including bronchoscopic examination, before the surgical removal and pathological study of the lesion. The pathological diagnosis was that of encapsulated empyema, benign fibrous mesothelioma, thymic cyst, anterior mediastinal teratoma, pericardial cyst, respectively, in five patients, primary undertermined adenocarcinoma in two, metastatic carcinoma in two, metastatic sarcoma in one, primary carcinoma in six, primary sarcoma in two, and probably tuberculous granuloma in three patients. The incidence of malignancy was high. The following conclusions were reemphasized by this group of patients. A correct appraisal of the nature of the circumscribed rounded intrathoracic lesions is usually not possible without subjecting them to direct examination at thoracotomy with removal of tissue for microscopic examination. Dissimilar pathological processes in the chest may produce virtually identical roentgenologic shadows; the same disease entity, on the other hand, may produce quite dissimilar roentgenograms. The presence in the lung of a lesion presumed to be metastatic from a primary neoplasm elsewhere may not always indicate widespread dissemination, and an aggressive attitude toward the lesion should probably be taken, especially if there has been a relatively long tumor-free interval. It might possibly be a solitary metastatic lesion with no other tumor foci remaining. A solitary pulmonary lesion in a person with previous adequately treated malignant disease elsewhere could represent a second primary neoplasm instead of a metastatic deposit. This further justifies an aggressive attitude toward lesions of this type. Since malignant lesions cannot be differentiated from those of less serious appearance, exploration is advisable.

BOOK REVIEWS

Old Age in the Modern World: Report of the Third Congress of the International Association of Gerontology, London, 1954. [Congress of International Association of Gerontology held in London in July, 1954, was organized with financial help of Council for International Organizations of Medical Sciences, organization subsidized by World Health Organization and UNESCO.] Cloth $8. Pp. 647, with illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; E. & S. Livingstone, Ltd., 16 and 17 Teviot Pl., Edinburgh 1, Scotland, 1955.

In selecting the papers to be published in this volume, the publishing committee gave preference to those containing original material, opening up new avenues of thought, or presenting authoritative reviews. Those papers relating to work already published or known to be in press are referred to by title only. This volume covers such subjects as age and society, nutritional aspects of aging, endocrinology, employment of older workers, community activities, and education for later maturity. The experiences, observations, and thinking of many workers concerning various aspects of the problem of aging are presented. Important scientific data on physiological, chemical, and psychological changes taking place in old age as well as performance data under various conditions are included. The sociological and philosophical aspects of aging are discussed. This volume presents an up-to-date cross section of the work of gerontologists throughout the world. It is a reference standard of what they knew and were doing as of July, 1954. It is one of the most important books on this general subject that has been published.

Premature Infants: A Manual for Physicians. By Ethel C. Dunham, M.D., Director, Division of Research in Child Development, U. S. Children's Bureau, Washington, D. C. Second edition. Cloth. $8. Pp. 459, with 42 illustrations, Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1955.

This outstanding book is not only a valuable textbook but also an excellent reference book that should be useful to everyone interested in prematurity. The first section, dealing with general considerations, gives the background necessary to acquaint the reader with the general problems of prematurity. The problem of prematurity is still so confusing that even the criteria for defining prematurity have not been clearly established. The author believes that the most practical guide for prematurity for the clinician is birth weight even though it is not an exact indication of the degree of prematurity. This book comes closer to establishing these criteria than anything published to date. Dr. Dunham also covers the latest accepted concepts on the factors influencing the incidence of prematurity and points out the causes and methods of its prevention. In this section she reviews the most important literature published today and recommends that "programs for the prevention of premature birth need to be organized with coordination of prenatal, labor and delivery care." She also believes that "in these efforts medical, nursing and welfare organizations should cooperate with public health and welfare programs." She discusses the gross inaccuracies of the present data on the survival rate and the standards for prognosis on the premature infant. Most of the published data in this field are inadequate, and there is a great need for standards and improved evaluations of the data accumulated. Relatively few studies have been made in the field of emotional disturbances of the premature infant, and "a clearer understanding of these problems is needed with a view of developing methods of preventing them."

The second part of the book deals with clinical considerations of the premature infant. This section takes the premature infant through all the hazards from the time of conception to the time of discharge from the hospital. The author calls attention to the various observations that clinicians should make in order to evaluate the premature infant's condition and to determine its prognosis. The chances of survival of the premature infant will be greatly enhanced by expert care in the delivery room. Expert medical and nursing care as well as suitable equipment and environmental conditions are most essential for this type of infant. The author points out all the important major accepted procedures for the care of the premature infant in the delivery room, during the first 24 hours, and thereafter, covering methods of feeding, medical care, type of clothing, and even psychological aspects of care and criteria for discharge of the infant from the hospital. An entire chapter is devoted to the feeding of the premature infant, outlining its nutritional handicaps and requirements and evaluating the various methods of feeding that are used today. Dr. Dunham urges a conservative attitude in the care of the premature infant and believes that maintenance of life should take precedence over anxiety to establish weight gains. The chapter on abnormal conditions and birth injuries discusses the incidence of these conditions and their effects on the survival rate, diagnostic criteria, and therapeutic approach.

Part three deals with public health considerations. In this section the author evaluates statistical information as to the mortality rate due to prematurity and points out many of its fallacies. She finds that certified death reports of most premature infants indicate no cause of death other than prematurity, which is misleading, and she urges that an accurate postmortem examination be made by competent pathologists in order to determine the exact cause of death, so that the results will be meaningful. In this final section she discusses the maternal factors influencing the mortality rate of premature infants and concludes that the following factors play an important role: (1) the mother's age and parity; (2) complications of pregnancy, labor, and delivery; (3) nonobstetric complications; and (4) the mother's economic and nutritional status. Dr. Dunham concludes that adequate and competent prenatal care is of primary importance in preventing complications of pregnancy or in prolonging pregnancy safely until the infant is sufficiently mature to have a good chance of survival. Medical and nursing care in the immediate neonatal period and later care under suitable conditions are of vital importance. The book ends with a thorough discussion of health programs on state, city, and hospital levels and recommends methods for developing statistics on prematurity and neonatal mortality, techniques for feeding, and special standards for hospital care. This book is a "must" for all who are particularly interested in hebdomadal deaths.

Psychopathology and Education of the Brain-Injured Child. Volume II: Progress in Theory and Clinic. By Alfred A. Strauss, President and Director, Cove Schools for Brain-Injured Children, Racine, Wisconsin, and Evanston, Illinois, and Newell C. Kephart, Professor of Psychology, Purdue University, Lafayette, Ind. In collaboration with Laura E. Lehtinen and Samuel Goldenberg. Cloth. $6. Pp. 266, with 37 drawings by Caspar Henselmann, Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W.C.1, England, 1955.

The work that Dr. Strauss has done with children with brain injuries during the past 15 years is well known. The present volume gives a theoretical formulation of the neurophysiological functions and dysfunctions that probably underlie the disorders of behavior and of mental life exhibited by children who suffer from cerebral palsy. Present-day formulations of the mental processes underlying normal perception, language, conceptualization, and behavior are presented. Against these backgrounds the psychopathology of the child with a brain injury is presented. The clinical psychological examination and bases for educational procedures are presented, together with scoring guides to certain mental tests. The chapter entitled Conclusions Affecting Education of Brain-Injured Children by L. E. Lehtinen is excellent. It provides information and advice that should be welcome to physicians and parents. The final chapter, entitled Essays on Mental Functioning of Brain-Injured Children, presents the speculative organization of neurology and psychophysiology that the authors have developed to guide them in their educational efforts and further research. This monograph is a contribution to present-day knowledge. It should be of value to the physician, the educator, and the clinical psychologist.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

QUERIES AND MINOR NOTES

REGENERATION OF THE TIBIA

To the Editor:—*A 2-year-old boy has been suffering for three months from osteomyelitis of the right tibia with metastatic pulmonary empyema that was drained. A few days ago his tibia, except for proximal and distal epiphyses, was removed. The fibula is intact. Periosteum of tibia was not removed. The boy's leg is now in a cast. 1. Could a new tibia be built by the periosteum? 2. If this could not happen, should a new tibia be grafted and when? What should be used as a graft? Could his parents be donors for a new tibia?*

M.D., Formosa.

Answer.—If the proximal and distal epiphyses are intact and if the transverse plate of growth cartilage, which is between each epiphysis and the shaft of a long bone, has not been too badly damaged, there is a good chance that the tibia will regenerate. If this does not happen, there would be no use of grafting a new tibia in a child at this age. The new tibia would not grow unless the epiphysial cartilage plate is still there and in a healthy condition. If the epiphysial cartilage plate can be demonstrated by x-ray or otherwise to be intact, and if the infection has been completely healed for a period of several months, a new bone graft should be tried. This bone could be the fibula of one of the parents or a full-thickness, 0.75-in. wide tibial bone graft from one of the parents. The best prospects, however, for this patient would be in the regeneration, from the periosteal-attached fragments, of a new tibia.

CYANOSIS DUE TO NITROGEN CONTENT OF WATER

To the Editor:—*Can a rather heavy nitrogen content in drinking water be detrimental for babies and young children? Not knowing, I have advised several parents to use distilled water for their younger children.*

Leon G. Campbell, M.D., Pasadena, Calif.

Answer.—You have advised correctly in prescribing distilled water instead of the well water for use by infants and young children, especially in preparing milk formula for infants. The chemical analysis indicates 2.72 mEq. per liter of nitrate (NO_3) as being present in the water, which is the same as 168.6 ppm of nitrate. The upper limit of safe water for the purpose of preparing milk mixtures for infants is 10 ppm. Some authorities, however, state that even 20 ppm may be present without causing serious difficulty. The danger of a high nitrate content of water is the development of cyanosis due to methemoglobin formation. The nitrates of water are believed to be converted to nitrites, and one molecule of nitrite combines with two molecules of hemoglobin to form methemoglobin. Cyanosis of this type is not relieved by oxygen administration, but it readily disappears when use of high nitrate containing water is discontinued.

EOSINOPHIL COUNTS

To the Editor:—*I am interested in data about the relation between eosinophil count in the venous blood versus the capillary blood.*

M.D., Ohio.

Answer.—It has generally been assumed on the basis of preliminary laboratory observations that the eosinophil counts of venous and capillary blood are quite similar (*Acta psychiat. et neurol.* suppl. 40, 1947, and *Lancet* **1**:129, 1952), but that greater consistency obtains with the use of venous blood (*J. A. M. A.* **151**:702 [Feb. 28] 1953). This consultant does not know of any recent critical studies of these assumptions. A method has been proposed to give reproducible eosinophil counts from free-flowing capillary blood (*Blood* **7**:1020, 1952), but no comparison is made with simultaneous venous blood samples from the same patients. This technique could be applied with equally good results to venous blood samples. In unpublished observations of simultaneous venous and arterial blood eosinophil counts on 16 resting patients (Muehrcke, R. C.: Master's thesis, Chicago, University of Illinois College of Medicine, 1952) eosinophil counts in the arterial blood averaged about 90% of those in the venous blood. On the average, free-flowing capillary blood would thus be expected to show a very comparable but slightly lower value than corresponding venous blood.

TETANUS IMMUNIZATION

To the Editor:—*Recently an orthopedic surgeon in discussing the value of tetanus toxoid over tetanus antiserum said that alum-precipitated toxoids gave the best protection, but he was not sure whether it or plain tetanus toxoid should be used in adults. Years ago a patient had a booster shot using alum-precipitated toxoid and had a chill with a high fever a few hours later. It is important to know which of these types to use as a booster shot on an individual who is severely injured. Would you please advise me.* *M.D., Oklahoma.*

Answer.—Originally the use of toxoids in immunization procedures was not advised for those who were over 10 years of age. This warning was given because of the possibility of severe reactions in persons beyond the period of childhood. Alum-precipitated toxoids are believed to convey a more enduring immunity than fluid toxoids. Because of the slower absorption of the former their action is more prolonged, but active immunity may be established more quickly with fluid toxoid. At present the toxoids are more highly refined than formerly and are in common usage for individuals of all ages. However, as a precaution a toxoid sensitivity (Moloney) test can be made. This is an intradermal test with diluted (1:10 or 1:20) toxoid and is read at the end of 48 hours. For basic tetanus immunization the Medical Service of the United States and the departments of the Army, Navy, and Air Force give three intramuscular injections of alum-precipitated tetanus toxoid at intervals of from one to two months. Each dose is usually 0.5 cc. If an injured person has been adequately protected by active immunization, a booster dose of fluid toxoid should obviate the need of tetanus antitoxin, although the latter is sometimes administered when the injury is extremely severe.

LOSS OF POTENCY FOLLOWING PROSTATIC RESECTION

To the Editor:—*A 69-year-old man had a partial transurethral resection of the prostate two and a half years ago. He became impotent one year ago but is in good physical condition otherwise. Blood pressure is 155/84 mm. Hg. Is it safe to give testosterone propionate or anything else there is to help regain his potency?*

M.D., California.

Answer.—There is absolutely no evidence to show that male hormone injection will in any way bring about or precipitate carcinoma of the prostate. If the tissue removed at the time of the transurethral resection was definitely that of benign hyperplasia, there would be no danger in giving him testosterone propionate. Whether or not his potency will be favorably affected by testosterone propionate is another matter. There are some people who believe that testosterone propionate in large doses will help reestablish virility once it has waned. Such has not been the experience of this consultant who has tried this in a large series of patients. Since the new fortified testosterone propionate can be given in doses of 100 mg. per cubic centimeter it would do no harm to try injecting this once a week for a period of six weeks.

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BOOK REVIEWS

Old Age in the Modern World: Report of the Third Congress of the International Association of Gerontology, London, 1954. [Congress of International Association of Gerontology held in London in July, 1954, was organized with financial help of Council for International Organizations of Medical Sciences, organization subsidized by World Health Organization and UNESCO.] Cloth. $8. Pp. 647, with illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; E. & S. Livingstone, Ltd., 16 and 17 Teviot Pl., Edinburgh 1, Scotland, 1955.

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QUERIES AND MINOR NOTES

REGENERATION OF THE TIBIA

To the Editor:—*A 2-year-old boy has been suffering for three months from osteomyelitis of the right tibia with metastatic pulmonary empyema that was drained. A few days ago his tibia, except for proximal and distal epiphyses, was removed. The fibula is intact. Periosteum of tibia was not removed. The boy's leg is now in a cast. 1. Could a new tibia be built by the periosteum? 2. If this could not happen, should a new tibia be grafted and when? What should be used as a graft? Could his parents be donors for a new tibia?*

M.D., Formosa.

Answer.—If the proximal and distal epiphyses are intact and if the transverse plate of growth cartilage, which is between each epiphysis and the shaft of a long bone, has not been too badly damaged, there is a good chance that the tibia will regenerate. If this does not happen, there would be no use of grafting a new tibia in a child at this age. The new tibia would not grow unless the epiphysial cartilage plate is still there and in a healthy condition. If the epiphysial cartilage plate can be demonstrated by x-ray or otherwise to be intact, and if the infection has been completely healed for a period of several months, a new bone graft should be tried. This bone could be the fibula of one of the parents or a full-thickness, 0.75-in. wide tibial bone graft from one of the parents. The best prospects, however, for this patient would be in the regeneration, from the periosteal-attached fragments, of a new tibia.

CYANOSIS DUE TO NITROGEN CONTENT OF WATER

To the Editor:—*Can a rather heavy nitrogen content in drinking water be detrimental for babies and young children? Not knowing, I have advised several parents to use distilled water for their younger children.*

Leon G. Campbell, M.D., Pasadena, Calif.

Answer.—You have advised correctly in prescribing distilled water instead of the well water for use by infants and young children, especially in preparing milk formula for infants. The chemical analysis indicates 2.72 mEq. per liter of nitrate (NO_3) as being present in the water, which is the same as 168.6 ppm of nitrate. The upper limit of safe water for the purpose of preparing milk mixtures for infants is 10 ppm. Some authorities, however, state that even 20 ppm may be present without causing serious difficulty. The danger of a high nitrate content of water is the development of cyanosis due to methemoglobin formation. The nitrates of water are believed to be converted to nitrites, and one molecule of nitrite combines with two molecules of hemoglobin to form methemoglobin. Cyanosis of this type is not relieved by oxygen administration, but it readily disappears when use of high nitrate containing water is discontinued.

EOSINOPHIL COUNTS

To the Editor:—*I am interested in data about the relation between eosinophil count in the venous blood versus the capillary blood.*

M.D., Ohio.

Answer.—It has generally been assumed on the basis of preliminary laboratory observations that the eosinophil counts of venous and capillary blood are quite similar (*Acta psychiat. et neurol.* suppl. 40, 1947, and *Lancet* 1:129, 1952), but that greater consistency obtains with the use of venous blood (*J. A. M. A.* **151:**702 [Feb. 28] 1953). This consultant does not know of any recent critical studies of these assumptions. A method has been proposed to give reproducible eosinophil counts from free-flowing capillary blood (*Blood* **7:**1020, 1952), but no comparison is made with simultaneous venous blood samples from the same patients. This technique could be applied with equally good results to venous blood samples. In unpublished observations of simultaneous venous and arterial blood eosinophil counts on 16 resting patients (Muehrcke, R. C.: Master's thesis, Chicago, University of Illinois College of Medicine, 1952) eosinophil counts in the arterial blood averaged about 90% of those in the venous blood. On the average, free-flowing capillary blood would thus be expected to show a very comparable but slightly lower value than corresponding venous blood.

TETANUS IMMUNIZATION

To the Editor:—*Recently an orthopedic surgeon in discussing the value of tetanus toxoid over tetanus antiserum said that alum-precipitated toxoids gave the best protection, but he was not sure whether it or plain tetanus toxoid should be used in adults. Years ago a patient had a booster shot using alum-precipitated toxoid and had a chill with a high fever a few hours later. It is important to know which of these types to use as a booster shot on an individual who is severely injured. Would you please advise me.*

M.D., Oklahoma.

Answer.—Originally the use of toxoids in immunization procedures was not advised for those who were over 10 years of age. This warning was given because of the possibility of severe reactions in persons beyond the period of childhood. Alum-precipitated toxoids are believed to convey a more enduring immunity than fluid toxoids. Because of the slower absorption of the former their action is more prolonged, but active immunity may be established more quickly with fluid toxoid. At present the toxoids are more highly refined than formerly and are in common usage for individuals of all ages. However, as a precaution a toxoid sensitivity (Moloney) test can be made. This is an intradermal test with diluted (1:10 or 1:20) toxoid and is read at the end of 48 hours. For basic tetanus immunization the Medical Service of the United States and the departments of the Army, Navy, and Air Force give three intramuscular injections of alum-precipitated tetanus toxoid at intervals of from one to two months. Each dose is usually 0.5 cc. If an injured person has been adequately protected by active immunization, a booster dose of fluid toxoid should obviate the need of tetanus antitoxin, although the latter is sometimes administered when the injury is extremely severe.

LOSS OF POTENCY FOLLOWING PROSTATIC RESECTION

To the Editor:—*A 69-year-old man had a partial transurethral resection of the prostate two and a half years ago. He became impotent one year ago but is in good physical condition otherwise. Blood pressure is 155/84 mm. Hg. Is it safe to give testosterone propionate or anything else there is to help regain his potency?*

M.D., California.

Answer.—There is absolutely no evidence to show that male hormone injection will in any way bring about or precipitate carcinoma of the prostate. If the tissue removed at the time of the transurethral resection was definitely that of benign hyperplasia, there would be no danger in giving him testosterone propionate. Whether or not his potency will be favorably affected by testosterone propionate is another matter. There are some people who believe that testosterone propionate in large doses will help reestablish virility once it has waned. Such has not been the experience of this consultant who has tried this in a large series of patients. Since the new fortified testosterone propionate can be given in doses of 100 mg. per cubic centimeter it would do no harm to try injecting this once a week for a period of six weeks.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

AROSINUSITIS

THE EDITOR:—*During an air flight from Montreal, Canada, to Boston on a sunny and hot summer day (90 F temperature) a woman had a frightening experience. When the plane began to lose altitude preparatory to landing she suffered a severe pain "at the hairline over the forehead." She described the pain as being intense for several minutes, improving slightly, then becoming worse again, and finally decreasing to about half the intensity when the plane landed. The pain persisted at this intensity for about five hours and was practically gone after a night's rest, although there was a mild ache above the left eye and over the forehead. When the pain first started she thought she was going to die. In addition, she complained of a visual disturbance like a "blacking out" and this soon disappeared. She pointed to the area of the left frontal sinus, particularly, but said that it seemed to go across the entire forehead and up to the hairline. She seemed none the worse for her experience 24 hours later. I will appreciate information regarding such an experience.*

M.D., Massachusetts.

ANSWER.—The symptoms described most likely occurred due to a brief episode of barosinusitis, more especially the left frontal sinus. The basic cause of this difficulty is the pressure differential of air entrapped in the sinus and the ambient pressure of the atmosphere the patient is breathing. This could be expected to occur with descent of the aircraft preparatory to landing. The most common symptom accompanying barosinusitis is an extremely sharp pain or stinging sensation. The location of the pain depends on which sinuses are affected. Most frequently the frontal sinus will be involved, then the maxillary sinus. The pain is usually of sudden onset and severe intensity during descent. As a rule, the pain continues from time of onset until time of landing, but occasionally it persists or recurs for some hours or several days. A difference of pressure of the air contained within a sinus and that of the atmosphere will result if the sinus ostium is occluded by any developmental or acquired formation that acts as a valve and so permits air flow through the ostium in one direction only. The most common contributing factor is the presence of upper respiratory infection.

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TO THE EDITOR:—*A gravida 5 para 3 woman, aged 37, following the birth of her first child, broke out with hives on the ninth postpartum day. On the 10th postpartum day for her second child she developed a general eczematoid dermatitis that was resistive to antiallergic therapy but finally disappeared about the fourth month post partum. Her third pregnancy ended in the fourth month in a spontaneous abortion. Following the birth of her third child she again developed a general eczematoid dermatitis. Both of these were preceded by two days of general urticaria. She has nursed all her babies. She is now entering her fourth month of pregnancy. Can we do anything to prevent a recurrence of the dermatitis? Could lactation have anything to do with it?*

M.D., Connecticut.

This inquiry was referred to two consultants, whose respective replies follow.—ED.

ANSWER.—It is difficult to decide on the cause of the skin reactions that developed in this patient. The hormones produced by the placenta may be responsible, in which case there is no prophylactic therapy. If drugs have been given before delivery they may be responsible. Likewise, in rare instances, an anesthetic agent may be the cause. It is not likely that lactation is responsible, but occasionally drugs and special foods taken to increase the milk supply may produce a skin reaction.

ANSWER.—If it may be assumed that both contact dermatitis and drug eruption have been ruled out, diagnoses such as dermatitis herpetiformis and hypersensitivity to either placental products or to the patient's milk must be considered. The latter two conditions are exceedingly rare. For the other conditions therapy with corticosteroids should be helpful provided too there are no contraindications to their use. Coupled with the use of bland topical agents, such therapy should prove effective quickly.

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TO THE EDITOR:—*Is there a likelihood of a marked diminution in the intrinsic factor developing following partial gastrectomy? Are such patients prone to develop severe anemia in three to five months?*

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ANSWER.—A marked deficiency of the intrinsic factor would lead to vitamin B_{12} deficiency, and the anemia occurring would be megaloblastic and would respond to parenteral injections of vitamin B_{12}. The development of megaloblastic anemia following partial gastrectomy is rare. The anemia following partial gastrectomy is much more likely to be hypochromic due to iron deficiency. Patients who have had a total gastrectomy may develop megaloblastic anemia three to five years after surgery, and totally gastrectomized patients should be given 30 mcg. of vitamin B_{12} subcutaneously every three weeks.

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MANAGEMENT OF METASTATIC MAMMARY CANCER

Olof H. Pearson, M.D., Min C. Li, M.D., John P. Maclean, M.D., Mortimer B. Lipsett, M.D.
and
Charles D. West, M.D., New York

The majority of women with primary breast cancer eventually develop dissemination of their disease despite mastectomy and prophylactic radiation therapy. This indicates that metastasis occurs early. The progession of the metastatic cancer, however, is extremely variable. In some cases there is rapid growth and dissemination of the tumor, whereas in others the cancer appears to lie dormant for several years before the metastases manifest themselves. There is no satisfactory explanation for the variable course of this disease.

Palliative therapy constitutes an important aspect in the management of patients with breast cancer. X-ray therapy and endocrine treatment provide effective palliation in many patients with metastatic breast cancer. Not only do these modalities afford relief of symptoms but in many cases the growth of the cancer is temporarily arrested, thus providing prolongation of useful life. It is the purpose of this paper to review the endocrine treatment of metastatic breast cancer and to outline the sequence of therapy that is most likely to yield optimum results.

OOPHORECTOMY

Oophorectomy induces objective remissions in about 44% of premenopausal women with metastatic breast cancer and constitutes the optimal initial treatment for these patients.[1] The remissions average nine months in duration, with a median period of six and one-half months. It has been demonstrated that oophorectomy induces its benefit by removal of the major endogenous source of estrogen.[2] Approximately one-half of the patients have non-estrogen-dependent tumors and fail to obtain improvement from castration.

No practical means for selecting patients for oophorectomy has been found. Neither the histological picture of the cancer nor any clinical manifestation of the disease has been helpful in predicting a favorable response. Thus, oophorectomy is undertaken with only an approximate 50% expectation of benefit. Oophorectomy will occasionally produce improvement in postmenopausal women, but it cannot be recommended, since the yield of beneficial results is too small. Patients who fail to respond to oophorectomy are unlikely to benefit from other forms of endocrine therapy. Administration of cortisone or an estrogen preparation is occasionally beneficial, and hypophysectomy is being explored as a means of helping these patients.

ADRENALECTOMY

Of 38 women with metastatic breast cancer, all of whom had previously been oophorectomized, bilateral adrenalectomy produced objective remissions in 45%.[1] The average duration of the remissions was nine months, with a median of seven months. Adrenalectomy appears to produce benefit by removal of another source of endogenous estrogens. Thus, patients who have obtained a beneficial response from castration are likely to have a second remission from adrenalectomy. Patients who fail to benefit from oophorectomy also fail to respond to adrenalectomy. Knowledge of the initial response to oophorectomy provides the best means of selecting patients for adrenalectomy.

In 25 postmenopausal women, combined oophorectomy and adrenalectomy in one stage produced objective remissions in 16 cases.[3] (Of these 25 patients, 15 had spontaneous menopause and 10 had artificially induced menopause. Twelve of the 15 with spontaneous menopause and 4 of the 10 with artificial menopause had remissions.) The average duration of the remissions exceeds eight months (eight patients are still in remission at present). These observations suggest that in approximately 50% of cases, in all age groups, mammary cancer is estrogen-dependent and will respond

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favorably to removal of endogenous sources of estrogen. Combined oophorectomy and adrenalectomy is the recommended initial therapy in postmenopausal women. There is no practical method of selecting patients who will benefit from combined oophorectomy and adrenalectomy, and it must be undertaken with an approximate 50% chance of obtaining a favorable response.

HYPOPHYSECTOMY

Total hypophysectomy in man is now an established surgical procedure which can be performed without great risk.[4] Pearson and others have obtained objective remissions from hypophysectomy in women whose breast cancer had become reactivated following oophorectomy and adrenalectomy. This suggests that the growth of some breast cancers may be dependent upon a pituitary hormone (or hormones) in addition to their estrogen dependence. Hypophysectomy not only eliminates pituitary hormones but also produces profound suppression of ovarian and adrenal function, comparable to the surgical removal of these endocrine glands. Thus, hypophysectomy is being explored as the initial endocrine treatment for patients with metastatic breast cancer.

In a series of 58 patients with breast cancer who underwent hypophysectomy, Pearson and others [4b] obtained objective remissions in 54% of 37 cases that could be evaluated. Luft and Olivecrona [4a] have obtained similar results in their series of 37 patients. A further period of observation is required to determine the average duration of hypophysectomy-induced remissions. If hypophysectomy can produce a summation of the beneficial results of oophorectomy, adrenalectomy, and hypophysectomy performed in sequence, then this procedure may become the optimal initial endocrine treatment for metastatic breast cancer.

ANDROGEN

It has been well established that androgen therapy will induce objective improvement in about 23% of women with breast cancer in all age groups. The average duration of the remissions is seven and one-half months, with a median of four and one-half months.[5] The mechanism by which androgen induces remissions is not known, but it has been considered that androgen may neutralize the effects of endogenous estrogen. If this is the mechanism of androgen action, it does not appear to be an efficient neutralizing agent, since in approximately 50% of cases mammary cancer is estrogen-dependent and androgen is effective in only one-half of this number of cases.

It has been demonstrated that androgen may accelerate the growth of mammary cancer in some patients.[6] Recent evidence indicates that androgen can be converted into estrogen in some patients.[7] This offers a possible explanation of why androgen can produce exacerbation of tumor growth.

Since androgen therapy carries the potential of accelerating the growth of breast cancer, and since the percentage of remissions is less than with ablative procedures, it would seem logical to reserve androgen treatment until the disease has relapsed after oophorectomy, adrenalectomy, or hypophysectomy. Androgen therapy is indicated in those patients who cannot tolerate or who refuse ablative therapy.

ESTROGENS

Administration of estrogens has been demonstrated to induce objective remissions in postmenopausal women with breast cancer. The combined results of several clinics [5] showed objective remissions in 44% of the cases. The average duration of the remissions was eight months, with a median of about four and one-half months. It has been well established that estrogens can also accelerate the growth of breast cancer. Since in approximately 50% of cases breast cancer is estrogen-dependent, estrogen is a potential hazard in this group of patients.

The mechanism by which estrogens induce remissions in women with breast cancer has not been established. It is possible that estrogens may induce beneficial effects by suppression of pituitary function.[8] Some breast cancers may depend upon two hormones (e. g., estrogen and growth hormone), and it is possible that estrogens may have dual effects on the growth of the cancer, one to stimulate and the other to suppress, of which either effect might predominate.

Since estrogens are potentially capable of producing harmful effects in about 50% of all women with breast cancer, it would seem wise to restrict their therapeutic use to those patients who fail to respond to castration or to castration and adrenalectomy. Estrogen therapy should be tried cautiously when ablative procedures cannot be done.

CORTISONE

Cortisone, in doses of 200 to 400 mg. a day, will induce objective remissions in about 30% of patients with metastatic breast cancer.[9] The average duration of the remissions is three months. Cortisone in doses of 50 to 75 mg. per day will occasionally produce improvement, but remissions comparable to those obtained with adrenalectomy have not been observed with small doses of cortisone alone.

Cortisone will induce remissions in patients with either estrogen-dependent or non-estrogen-dependent mammary cancer. The mechanism by which cortisone inhibits tumor growth is not known, but it may be due to a direct effect of the hormone on the tumor. Since the remissions induced by cortisone are usually of short duration, it seems best to reserve this therapy for patients who fail to respond to the other modalities of endocrine ther-

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4. (*a*) Luft, R., and Olivecrona, H.: Hypophysectomy in Man: Experiences in Metastatic Cancer of the Breast, Cancer **8**: 261-270, 1955. (*b*) Pearson, O. H., and others: Hypophysectomy in the Treatment of Advanced Cancer, Tr. A. Am. Physicians **68**: 101-111, 1955.

5. Proceedings of the Third Conference on Steroids and Cancer, Committee on Research of the Council on Pharmacy and Chemistry of the American Medical Association, May 14, 1954, to be published.

6. Farrow, J. H., and Woodard, H. Q.: The Influence of Androgenic and Estrogenic Substances on the Serum Calcium in Cases of Skeletal Metastases from Mammary Cancer, J. A. M. A. **118**: 339-343 (Jan. 31) 1942. Myers, W. P. L.; West, C. D.; Pearson, O. H., and Karnofsky, D. A.: Androgen-Induced Exacerbation of Human Breast Cancer as Measured by Calcium Excretion, abstracted, Proc. Am. A. Cancer Res. **2**: 36-37, 1955.

7. Nathanson, I. T., and others: The Effect of Androgens on the Urinary Excretion of Ketosteroids, Nonketonic Alcohols and Estrogens, J. Clin. Endocrinol. **12**: 1172-1186, 1952. West, C. D.; Damast, B.; Sarro, S. D., and Pearson, O. H.: Conversion of Testosterone to Estrogens in Castrated, Adrenalectomized Human Females, J. Biol. Chem., to be published.

8. Pearson, O. H., and others: Endocrine Treatment of Metastatic Cancer, Am. Surgeon, to be published.

9. West, C. D., and others: Cortisone-Induced Remissions in Women Metastatic Mammary Cancer, abstracted, Proc. Am. A. Cancer Res. 1-52, 1954.

apy or who have relapsed after such therapy. Cortisone is also useful in critically ill patients. If a remission can be induced with cortisone therapy, the patient may then be in a suitable condition for other forms of endocrine therapy.

X-RAY THERAPY

X-ray therapy will induce objective regression in up to 75% of individual lesions of metastatic mammary cancer. The duration of the growth-inhibiting effects of radiation is variable, and figures for the average duration of response in different organ sites are not available. Since x-ray therapy induces its effects only in the local area being treated, it is our opinion that endocrine therapy constitutes the optimal initial therapy for metastatic breast cancer. When endocrine therapy induces an objective response, not only is there prompt relief of symptoms from individual lesions but also the growth of all metastatic lesions is temporarily inhibited.

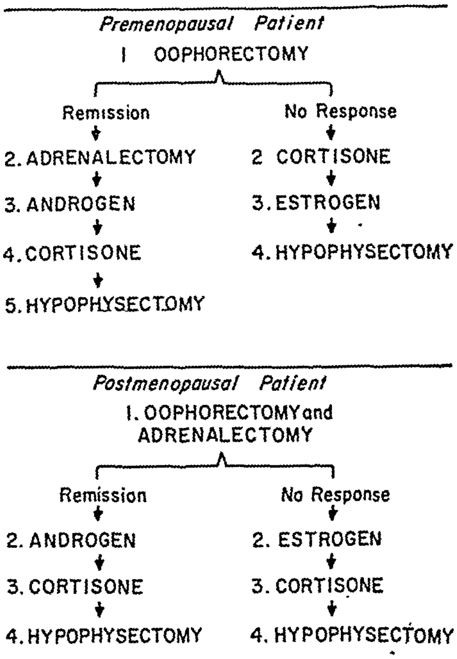
COMMENT

The table summarizes the results of the various forms of endocrine therapy for metastatic breast cancer. In the figure the sequence of endocrine therapy that, at present, appears to offer the optimum therapeutic results is presented. This sequence of therapy will undoubtedly be modified as more experience is accumulated. Thus, if hypophysectomy can produce a summation of the beneficial effects of oophorectomy, adrenalectomy, and hypophysectomy performed in sequence, then hypophysectomy may become the preferred initial treatment. It will also be of interest to determine whether estrogen or androgen administration can produce tumor-inhibiting effects in patients who have failed to respond or who have relapsed after total hypophysectomy.

Results of Endocrine Treatment of Metastatic Breast Cancer

Treatment	Status	Cases, No.	Objective Remissions, %	Duration, Mo.	
				Mean	Median
Oophorectomy [1]	Premenopausal	75	44	9	6.5
	Postmenopausal	21	10	..	.
Adrenalectomy [1]	(All previously oophorectomized)	38	45	9	7
Combined oophorectomy and adrenalectomy [3]	Postmenopausal	25	64	(8)+	(8)+
*Hypophysectomy [4b]	All ages	37	54	?	?
Androgen [5] (testosterone propionate 100 mg. 3 times a week)	All ages	416	23	7.5	4.5
Estrogen [5] (diethylstilbestrol 15 mg./day or ethinyl estradiol 3 mg./day)	Postmenopausal 5+ yr.	381	44	8	4.5
Cortisone [9]					
200-400 mg./day	All ages	39	31	3	3
50-75 mg./day	All ages	14	14	2	...

* Preliminary observations from a group of 58 patients in whom the results of hypophysectomy could be evaluated.



Recommended sequence of therapy for metastatic breast cancer.

The possible mechanisms by which alterations in endocrine environment affect the growth of breast cancer have been briefly discussed. The present evidence suggests that the growth of mammary cancer is, in many cases, dependent upon circulating hormones that are secreted from the ovaries, adrenals, and pituitary gland. Removing or lowering the titer of these hormones results in temporary cessation of growth and regression of the cancer. This concept provides a rational physiological basis for treatment.

All forms of endocrine therapy so far studied produce only temporary palliative effects. This suggests that breast tumors are only partially dependent upon hormones for their growth and that biological adaptation can occur whereby the tumor grows in the absence of endocrine stimuli. Endocrine therapy has been reserved for advanced stages of the disease. No information is available to determine whether ablative endocrine therapy might be more effective if carried out earlier in the course of the disease. Greene [10] has presented evidence to suggest that primary malignant tumors are more dependent upon their environment for growth than are tumors that have become disseminated. Thus, studies of endocrine therapy early in the course of the disease are needed before hormone treatment is permanently relegated to the advanced stages.

Whether endocrine therapy significantly prolongs life in those patients with breast cancer who obtain a favorable response has not been rigidly established on the basis of statistics. On the basis of individual experience, there appears to be no question that useful survival is prolonged in most patients who obtain a favorable response. Carefully planned endocrine and radiation therapy constitute worthwhile treatment for many patients with metastatic breast cancer.

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10. Greene, H. S. N.: A Conception of Tumor Autonomy Based on Transplantation Studies: A Review, Cancer Res. **11**: 899-903, 1951.

SUMMARY

Metastatic mammary cancer in premenopausal women was treated by oophorectomy in 75 cases, and remissions averaging nine months in duration were obtained in 33 cases. In 31 postmenopausal women, the same operation gave remissions in only 2 cases. Adrenalectomy in 38 previously oophorectomized patients was followed by remission in 17 cases, and in 25 postmenopausal patients combined oophorectomy and adrenalectomy gave 16 remissions. Evidence of endocrine influences in early mammary carcinoma led to investigation of effects of hypophysectomy, which gave remissions in 20 out of 37 cases. The duration of this improvement remains to be determined. Treatment with estrogens and androgens gave variable effects, some of them harmful, and the remissions that occasionally followed cortisone were brief. Endocrine therapy, whether by ablation or by hormone administration, has the advantage over roentgenotherapy that its effects, when they are favorable, are not confined to the area treated.

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USE OF NITROGEN MUSTARD IN TREATMENT OF SEROUS EFFUSIONS OF NEOPLASTIC ORIGIN

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and
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Effusions into the pleural, peritoneal, or pericardial cavities as a result of metastatic malignancies may be distressing and disabling but are not necessarily immediately fatal. Direct instillation of radioactive colloidal gold is effective in 50 to 67% of cases in decreasing or eliminating the reaccumulation of fluid.[1] There are, however, several disadvantages to the use of radioactive gold. Thus, special facilities are required for its use, and it is difficult to handle. It has a short half-life, it is not universally available, and it is expensive to the patient. In addition, it represents a potential radiation hazard to the patient, doctors, nurses, and technicians. Routine use of radioactive gold therapy is therefore not feasible in most hospitals.

Several reports have shown that direct instillation of nitrogen mustard into malignant effusions may also be effective in decreasing or eliminating reaccumulation of fluid.[2] Experience with use of this drug in this manner has been limited. The total number of cases reported are few, and the period of observation has been short. The purpose of this report is to present the results of direct instillation of nitrogen mustard in 43 patients with malignant effusions treated during the past two years.

MATERIALS AND METHODS

All patients treated had pleural, peritoneal, or pericardial effusions due to metastatic malignant disease. In all instances the malignant origin of the effusion was proved either by the presence of malignant cells in aspirated fluid or by the presence of fluid with the characteristics of an exudate (specific gravity 1.016 or greater and high protein content) in a patient with known malignant disease.

Table 1 shows the type of primary tumor and the site of effusion in the patients treated. There were 30 patients with pleural effusions, 11 patients with peritoneal effusions, and 2 patients with pericardial effusions. Twelve patients had carcinoma of the breast, 10 had ovarian carcinoma, 6 had lymphomas, 3 had bronchiogenic carcinoma, and the remainder had various other types of malignant disease.

Immediately prior to therapy with nitrogen mustard patients were given 0.2 gm. of secobarbital (Seconal) and 50 mg. of chlorpromazine (Thorazine) orally. The therapy with secobarbital was repeated in two hours if necessary for control of nausea and vomiting. In the patients with pleural and peritoneal effusions, nitrogen mustard was administered in a single injection of 0.4 mg. per kilogram of body weight. In the two patients with pericardial effusion, doses of 10 mg. and 22 mg. of nitrogen mustard were used respectively. The nitrogen mustard was prepared immediately preceding injection by adding 10 ml. of isotonic sodium chloride to each 10 mg. vial.

In the treatment of peritoneal effusion, a paracentesis was done in the usual manner and approximately one-half of the fluid removed. While there was still a free flow of fluid, the nitrogen mustard was administered either through a small rubber catheter inserted into the trocar or through a no. 18 needle introduced at another site. A free flow of fluid must be present before instilla-

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This investigation was aided by the Price-McKinney Fund.

The nitrogen mustard [methyl *bis* (β chlorethyl) amine hydrochloride] used in this study was furnished by Merck & Co., Inc., Rahway, N. J.

[1] Clarke, T. H.: Radioactive Colloidal Gold Au^{198} in the Treatment of Neoplastic Effusions, Quart. Bull. Northwestern Univ. M. School **26**: 98-104, 1952. King, E. R., and others: The Use of Radioactive Colloidal Gold (Au^{198}) in Pleural Effusions and Ascites Associated with Malignancy, Am. J. Roentgenol. **68**: 413-420, 1952. Andrews, G. A.; Root, S. W.; Kerman, H. D., and Bigelow, R. R.: Intracavitary Colloidal Radiogold in the Treatment of Effusions Caused by Malignant Neoplasms, Ann. Surg. **137**: 375-381, 1953. Storaasli, J. P.; Bonte, F. J.; King, D. P., and Friedell, H. L.: The Use of Radioactive Colloidal Gold in the Treatment of Serous Effusions of Neoplastic Origin, Surg. Gynec. & Obst. **96**: 707-710, 1953. Kent, E. M., and others: Radioactive Isotopes in Management of Carcinomatosis of Serous Body Cavities, A. M. A. Arch. Int. Med. **94**: 334-340 (Sept.) 1954. Seaman, W. B.; Sherman, A. I., and Bonebrake, M.: Radioactive Gold in the Treatment of Malignant Effusions, J. A. M. A. **153**: 630-633 (Oct. 17) 1953.

[2] Karnofsky, D. A.; Abelmann, W. H.; Craver, L. F., and Burchenal, J. H.: The Use of Nitrogen Mustards, in the Palliative Treatment of Carcinoma: With Particular Reference to Bronchogenic Carcinoma, Cancer **1**: 634-656, 1948. Skinner, E. F., and Carr, D.: Palliative Therapy of Incurable Intrathoracic Malignancies, Am. Pract. & Digest Treat. **3**: 900-910, 1952. Albertelli, J.; Mónaco, H.; O'Connor, T., and Bur, G. E.: Nitrogen Mustard in Serosal Cavities in Treatment of Advanced Malignant Tumors, Prensa méd. Argent. **41**: 201-205, 1954.

tion of the nitrogen mustard in order that sufficient fluid remain to insure dissemination of the nitrogen mustard and to guard against instillation of the nitrogen mustard subcutaneously or into a loculated pocket where it will cause local tissue damage without affecting peritoneal implants.

TABLE 1.—*Direct Instillation of Nitrogen Mustard into Malignant Effusions*

Case No.	Site or Type of Primary Malignancy	Site of Effusion	Result *	Duration of Improvement, Mo.	Present Status	Remarks
1	Breast	Pericardial	++	14	Living	Cardiac tamponade completely relieved
2	Breast	Pleural	++	14	Living	Asymptomatic
3	Breast	Pleural	++	10	Living	No further taps required; disease progressing elsewhere
4	Breast	Pleural	++	8	Living	Asymptomatic
5	Breast	Pleural	++	6	Living	Asymptomatic
6	Breast	Pleural	++	6	Living	Asymptomatic
7	Breast	Pleural	++	2	Living	Asymptomatic
8	Breast	Pleural	++	2	Living	Asymptomatic
9	Breast	Pleural	+	1	Died	No further taps required; no response to x-ray
10	Breast	Pleural	0	..	Died	Terminal; died within 1 wk.
11	Breast	Pleural	0	..	Died	Terminal; died within 2 wk.
12	Breast	Pleural	0	..	Died	Terminal; died within 1 mo.
13	Ovary	Peritoneal	++	13	Living	Asymptomatic; no improvement with radioactive gold
14	Ovary	Pleural	++	8	Living	Asymptomatic
15	Ovary	Pleural	++	6	Living	Completely asymptomatic
16	Ovary	Pleural	++	5	Died	No further taps required
17	Ovary	Pleural	++	2	Living	Asymptomatic
18	Ovary	Peritoneal	++	2	Living	Asymptomatic
19	Ovary	Peritoneal	++	2	Living	Asymptomatic
20	Ovary	Peritoneal	++	2	Living	....
21	Ovary	Peritoneal	+	3	Died	Decreased frequency and amount of taps
22	Ovary	Peritoneal	+	2	Living	Decreased frequency and amount of taps
23	Ovary	Peritoneal	0	..	Died	Terminal; died within 2 wk.
24	Lung	Pleural	+	6	Died	No response to radioactive gold; decreased frequency of taps
25	Lung	Pleural	0	..	Died	Terminal; died within 2 wk.
26	Lung	Pleural	0	..	Died	Terminal; died within 1 mo.
27	Rectum	Pleural	0	..	Died	....
28	Rectum	Pleural	0	..	Died	....
29	Fibrosarcoma	Pleural	0	..	Living	Later responded to radioactive gold
30	Fibrosarcoma	Peritoneal	+	3	Living	No response to radioactive gold first
31	Fibrosarcoma	Peritoneal	+	2	Living	No response to radioactive gold first
32	Fallopian tube	Peritoneal	0	..	Died	....
33	Undetermined	Pleural	++	12	Died	No further taps; adhesive obliteration
34	Undetermined	Pleural	++	2	Died	No further taps; adhesive obliteration
35	Undetermined	Pericardial	++	2	Living	Cardiac tamponade completely relieved
36	Undetermined	Pleural	0	..	Died	Terminal; died within 2 wk.
37	Undetermined	Peritoneal	0	..	Died	Terminal; died within 1 mo.
38	Lymphosarcoma	Pleural	++	24	Living	Disease under control
39	Lymphosarcoma	Pleural	+	2	Died	Decreased frequency and amount of taps
40	Lymphosarcoma	Pleural	0	..	Died	Terminal
41	Lymphosarcoma	Pleural	0	..	Died	Terminal
42	Hodgkins	Pleural	+	2	Died	Decreased frequency and amount of taps
43	Hodgkins	Pleural	0	..	Died	....

* ++ indicates no reaccumulation of fluid; +, decreased formation of fluid; 0, no improvement.

A similar procedure was followed for the intrapleural and intrapericardial administration of nitrogen mustard, except that the nitrogen mustard was introduced directly through the needle used to remove the fluid. After administration of the nitrogen mustard, the patient was changed to a new position every 5 or 10 minutes for a period of one hour to insure more uniform distribution of the material throughout the serous cavity. On the day following administration of the nitrogen mustard, paracentesis was repeated and as much fluid removed as possible. The patients were followed closely with x-rays and physical examinations for evidence of reaccumulation of fluid.

RESULTS

Twenty-eight of the 43 patients treated in this manner (65%) were significantly improved. In 20 of the 28 patients there was no reaccumulation of fluid during their remaining course or up to the time of this report. In 8 of the 28 patients there was a marked reduction in the amount of fluid reaccumulating and consequently a decreased requirement for paracentesis. Twenty of these 28 patients are still living at the time of this report, with improvement lasting from 6 to 24 months in 10 patients and 2 to 5 months in 10 patients. The best responses were obtained in patients with carcinomas of the breast or ovary (tables 1 and 2).

TABLE 2.—*Summary of Results Obtained with Intracavitary Administration of Nitrogen Mustard in Malignant Effusions: Results Compared to Type of Tumor*

Site of Primary Malignancy	No.	Improvement
Breast	12	9
Ovary	11	10
Lymphatic system	6	3
Lung	3	1
Rectum	2	0
Miscellaneous *	9	5
Total	43	28 †

* See table 1.
† 20 complete, 8 partial.

Of those in whom the malignant effusion was completely eradicated, one patient is alive and well 24 months after therapy. Three other patients have survived for longer than 12 months and are still asymptomatic. An additional six patients have remained asymptomatic for periods of 6 to 10 months after therapy.

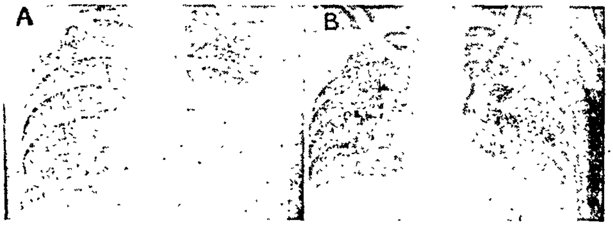

Fig. 1.—*A*, pleural effusion due to metastatic ovarian carcinoma. *B*, complete disappearance of fluid after nitrogen mustard therapy, with no reaccumulation at the time of death, five months later.

Several examples of marked improvement to therapy are shown in figures 1, 2, and 3. Figure 1 shows a case of pleural effusion due to metastatic ovarian carcinoma. There was full disappearance of fluid after therapy with nitrogen mustard, with no reaccumulation at the time of death, five months later. In figure 2 is shown a case of lymphosarcoma with pleural effusion. There has been no reaccumulation of fluid after 24 months, and the patient is still alive and well. The disease has been kept under control with cortisone and local x-ray therapy to the spleen and lymph nodes as needed. Figure 3 shows a case of pericardial and pleural effusion due to metastatic carcinoma of the breast. This patient had signs and symptoms of cardiac tamponade. After treatment with 10 mg. of nitrogen mustard intrapericardially and 0.4 mg. per kilogram of body weight injected into the left pleural cavity, there was disappearance of fluid; the patient is alive and well after 14 months.

Eighteen of 30 patients with effusions into the pleural space were improved (table 3). In these patients there was adhesive pleuritis and obliteration of the pleural space in three instances. In the remaining patients there was no damage to the pleura except for occasional minimal scarring. A reactive exudation occasionally occurred immediately after nitrogen mustard instillation, with a rapid reaccumulation of fluid. This appeared to be a favorable prognostic sign. Eight of 11 patients with malignant ascites were improved. Although pain rarely was associated with intrapleural injection of nitrogen mustard, this was a common occurrence with the intra-abdominal administration. This was frequently associated with nausea, vomiting, and cramps. However, these untoward symptoms subsided within two or three days, and there were no complications or after-effects.

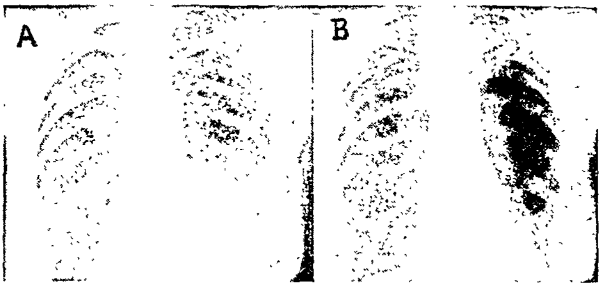

Fig. 2.—*A*, lymphosarcoma with pleural effusion. *B*, no reaccumulation of fluid 24 months after therapy with nitrogen mustard.

Both patients with pericardial effusions exhibited improvement (table 3). In these patients cardiac tamponade was completely relieved, and there has been no reaccumulation of fluid for 14 months in one patient and for 2 months in the other. Ten of the 16 patients who received no benefit from the instillation of nitrogen mustard were in the terminal phase of their illness and died within one month. There was no discernible effect on the rapidity of the course in these patients, either in increasing or decreasing the rapidity of the course.

TABLE 3.—*Summary of Results Obtained with Intracavitary Administration of Nitrogen Mustard in Malignant Effusions: Results Compared to Site of Effusion*

Site of Effusion	No.	Improvement
Pleural	30	18
Peritoneal	11	8
Pericardial	2	2

The side-effects following intracavitary injection of nitrogen mustard were usually minimal. Nausea and vomiting were less than after intravenous administration of nitrogen mustard and were usually well controlled by the use of secobarbital and chlorpromazine. The leukopenia developing after this form of therapy was generally very mild and much less than that developing with intravenous administration of nitrogen mustard. Pain rarely occurred with the intrapleural use of nitrogen

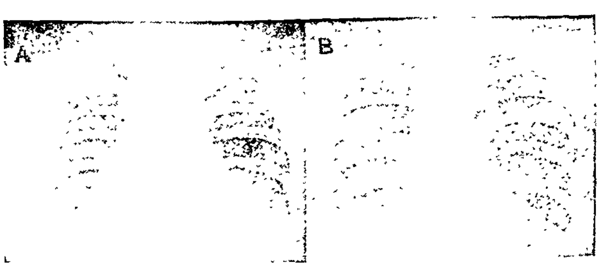

Fig. 3.—*A*, pericardial and pleural effusion due to metastatic carcinoma of the breast. *B*, after treatment with 10 mg. of nitrogen mustard intrapericardially and 0.4 mg. nitrogen mustard per kilogram of body weight injected into the left pleural space, there was complete disappearance of fluid. The patient is alive and well after 14 months.

mustard but was the rule rather than the exception with the intra-abdominal injections. The pain rapidly subsided in these patients, and there were no further complications. Cardiac irregularities were noted for a transient interval in one of the patients with pericardial effusion, but no adverse effects were observed in the other.

COMMENT

The direct instillation of nitrogen mustard into malignant effusions appears to be as effective as radioactive colloidal gold in decreasing or eliminating the formation of fluid. Thus, with radioactive gold, between 50% and 66% of patients were improved following therapy. In the present series, 65% of the patients treated were improved. In addition, the use of nitrogen mustard has several advantages over radioactive gold. It is easier and simpler to administer, no special facilities are required for its use, the drug is always available, it is less expensive to the patient, and it is not as dangerous to personnel involved. The intracavitary use of nitrogen mustard is associated with minimal and transient side-effects. It therefore appears to be the treatment of choice for the management of malignant effusions.

Long survival with relatively good health is possible following intracavitary therapy with nitrogen mustard. Its trial in all cases of malignant effusions is therefore indicated. This is especially true if the patient is otherwise in good physical condition, since most of the failures encountered in this series were in patients in a terminal state. If nitrogen mustard therapy is ineffective, subsequent treatment with radioactive gold may be beneficial. Thus, one patient not responding to nitrogen mustard subsequently responded to treatment with radioactive colloidal gold. The reverse is also true, since four patients who failed to respond to radioactive gold subsequently responded to treatment with nitrogen mustard. Thus, a total of five patients responded to combined treatment with nitrogen mustard and radioactive gold. There were no failures in any patient treated with both nitrogen mustard and radioactive gold. Such combined treatment may increase not only the percentage of favorable responses but the duration of improvement as well.

It is obvious that the direct instillation of nitrogen mustard into malignant effusions is effective against types of malignant tumors that do not usually respond to intravenous administration of this drug. It may be presumed that the effectiveness of this form of therapy is due to high local concentration of nitrogen mustard in direct contact with malignant tumor implants on serosal surfaces. The local concentration of nitrogen mustard may be of sufficient magnitude to be cancerocidal, whereas the dilution by body fluids of intravenously administered nitrogen mustards results in concentrations of nitrogen mustard too low to be effective against these tumors. Larger doses of nitrogen mustard cannot be given intravenously because of the resulting toxic side-effects and severe depression of bone marrow.

In this series, the leukopenia following therapy with nitrogen mustard was very mild and much less than that following intravenous therapy with nitrogen mustard. In addition, nausea and vomiting were also minimal and easily controlled. This suggests that larger doses of nitrogen mustard could be used without adverse side-effects. Larger doses may be more effective in increasing the percentage of favorable responses as well as increasing the duration of response.

In the choice of patients for this form of therapy, cases in which formation of fluid is due to obstructive phenomena should be excluded. If the effusion is chylous in nature or has the character of a transudate, improvement is unlikely, since large obstructing masses of tumor cannot be affected by nitrogen mustard locally. Worthwhile palliation may be obtained in these patients even without complete eradication of the tumor. Thus adhesive pleuritis with obliteration of the pleural space occurred in three patients, one of whom lived for 12 months following therapy. There was no further need for taps, and there was decreased pain, dyspnea, and discomfort.

SUMMARY AND CONCLUSIONS

The direct instillation of nitrogen mustard into malignant effusions was successful in decreasing or completely eliminating the formation of fluid in 65% of the cases treated. These results compare favorably with those obtained with radioactive colloidal gold. The use of nitrogen mustard has several advantages over radioactive gold. It is easier to administer, more universally available, and less expensive, and it presents no radiation hazard. Nitrogen mustard, therefore, appears to be the treatment of choice for malignant effusions. All patients treated with both nitrogen mustard and radioactive gold were improved. Combined therapy with both nitrogen mustard and radioactive gold may give better results than either one alone. Long periods of survival with good health may follow successful treatment of malignant effusions with nitrogen mustard. All patients with effusions due to metastatic malignancies should be given a trial of therapy with nitrogen mustard.

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Industrial Health.—Do you want to have the future of medicine directed by, medical opinions rendered by, and evaluations of medical care and service made by personnel officers, safety directors, labor groups, nurses, governmental persons, and plant managers? That is just what is going on now and will be standard practice if the physicians and surgeons in every community do not go into the industrial plants, attend meetings at which relevant matters are discussed, and give constructive (not narrow protective) advice. . . . The industrial nurses recognize the need for proper medical supervision. Some elements of management recognize the need for qualified medical supervision of their occupational health programs. . . . Each one of you have a responsibility for taking another look at yourself. Each of you should look within yourself, too. Is the present motivation of some practitioners selfish, narrow, or short-sighted? Is your motivation lacking in the force that reflects the benefits to be derived from a willingness to understand, cooperate, and look ahead with the people who support you? It is past time when you can be certain of the future unless you are going to participate in your local community industrial situations, in statewide programs, and in national affairs. Things just don't happen —they are the result of someone's efforts . . . you must be ready to contribute and show that the benefits of the future are your business.—E. M. Gunn, M.D., Industrial Health Is Your Business! *Journal of the South Carolina Medical Association*, September, 1955.

METAMINE (TRIETHANOLAMINE TRINITRATE BIPHOSPHATE) IN ANGINA PECTORIS

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and
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Of all the drugs commonly used in the treatment of angina pectoris, glyceryl trinitrate still appears to be, by far, the most effective and most rapid in action. There is a concomitant temporary fall in blood pressure associated with its use and with it a vasodilatation of vessels, including the coronary arteries. With an increase in coronary flow, there is a resultant decrease in preexisting myocardial ischemia in those patients with angina pectoris so treated. Certain undesirable reactions ensuing from the use of glyceryl trinitrate, including diminution of blood pressure and brevity of action, have resulted in a search for nitrocompounds which are devoid of side-effects and have a significantly longer period of action. Many nitrate compounds have been studied, as borne out by the extensive literature on the subject. Shortly before World War II, Junkmann [1] discovered the vasodilating action of Metamine (the biphosphate salt of triethanolamine trinitrate), a white crystalline powder readily soluble in water, with the following chemical formula: $N(CH_2CH_2ONO_2)_3.2H_3PO_4$.

BIOLOGICAL PROPERTIES

Junkmann [1] found that Metamine has the distinct feature of having the same action as glyceryl trinitrate but is both delayed and prolonged in its effect. It, too, has the same pharmacological action as all nitrates, but animal experimentation indicates that its coronary vasodilator effect approximately parallels that of glyceryl trinitrate but is far longer lasting. He experimented on both mice and rabbits, these animals tolerating the drug in large doses. Mice tolerated the drug in doses as high as 100 mg. per kilogram of body weight and rabbits in doses as high as 200 mg. per kilogram. Spühler,[2] Poumailloux and Tetreau,[3] and Bovet and Bovet-Nitti [4] studied the drug in both animals and man, confirming Junkmann's findings as to the low toxicity and coronary dilating action of the drug. Pfeiffer [5] and Gollwitzer-Meier and Kroetz [6] investigated the coronary flow with various drugs of the nitrate series in animals. They found that the effect of Metamine parallels that of glyceryl trinitrate and found that, although the systemic blood pressure changes little with large doses of Metamine, there is a considerable increase of coronary flow by virtue of active dilatation. Pfeiffer [5] feels that Metamine has certain additional advantages not possessed by glyceryl trinitrate, such as an increased oxygen consumption of heart muscle, as well as a reduction of cardiac output and minute flow. He believes that the drug is effective in the relief of myocardial ischemia by coronary vasodilation, increased myocardial oxygen consumption, and reduced cardiac output, although the latter two have not been confirmed. He explains the stationary peripheral blood pressure on a mechanism of compensatory peripheral vasoconstriction.

The most comprehensive and recent animal study of Metamine was carried out in 1951 by Melville and Lu.[7] They initially used the isolated perfused rabbit heart and compared Metamine with glyceryl trinitrate. They reached the following conclusions: 1. Both Metamine and glyceryl trinitrate produce a prompt and immediate coronary vasodilatation, but the duration of the response in the former is longer. 2. Both drugs show approximately equal toxic reactions on the isolated rabbit heart, and there is little difference in the immediate effects of repeated injections of equal doses of the two agents. With glyceryl trinitrate, there appears to be a somewhat greater cumulative depression of both the rate and the amplitude of the contractions than is observed with Metamine. These effects might conceivably influence coronary flow, but the authors conclude that in respect to their vasodilating actions, the two agents are relatively similar. 3. Using anesthetized dogs, the authors show that when 10 times as large a dose of Metamine as glyceryl trinitrate is injected, the depressor effect on systemic blood pressure is still considerably less. In the same experiment, large doses of both drugs administered intravenously produced little change in the electrocardiographic picture. 4. In dog heart-lung preparations, measurements were made to determine effects on cardiac output and heart rate with these agents. The results were similar in each. Doses of 5 to 10 mg. of each agent produce only a brief increase in cardiac output and transient cardiac acceleration. With 2.5 to 10 times this dose, there is only a progressive decrease in output and rate with both agents. 5. The authors tested the acute toxicity of the drugs in rats and rabbits and conclude that glyceryl trinitrate is somewhat less toxic. They demonstrate that the animal recovered after 50 mg. of Metamine per kilogram was given, but a dose of 100 mg. caused a delayed mortality, and 200 mg. per kilogram caused an immediate fatality in the animal.

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This study was supported in part by a grant from the Cardiovascular Research Foundation of Thos. Leeming & Co., Inc., New York.

[1] Junkmann, K.: Einiges über Spasmolytica, Arch. exper. Path. u. Pharmakol. **195**: 175, 1940.

[2] Spühler, O.: Ortin, ein Biphosphat des Triäthanolamin-Trinitrats zur Behandlung angiospastischer Zustände, Schweiz. med. Wchnschr. **79**: 518, 1949.

[3] Poumailloux, M., and Tetreau, H.: Essai clinique d'un nouveau medicament provisoirement denomme "Aminal," official report to Medicaments Trials Commission of France on the Preventive Therapeutic Action in Relation to the Attacks of Angina Pectoris, carried out at the request of the Drug Research Commission of the Republic of France, 1949.

[4] *Bovet, D., and Bovet-Nitti, F.: Propriétés hypotensives et vasodila*tatrices de l'ester nitrique de l'aminoéthanol et de ses dérivés, Arch. internat. pharmacodyn. **73**: 367, 1947.

[5] Pfeiffer, H.: Über die Wirkung von Trinitrat auf den menschlichen Kreislauf, Klin. Wchnschr. **28**: 304, 1950.

[6] Gollwitzer-Meier, K., and Kroetz, C.: Kranzgefässdurchblutung und Gaswechsel des innervierten Herzens, Klin. Wchnschr. **19**: 580, 616; 1940.

[7] Melville, K. I., and Lu, F. C.: Cardiovascular Effects of Triethanolamine Trinitrate—an Experimental Study, Canad. M. A. J. **65**: 11, 1951.

These experiments suggested that, like glyceryl trinitrate, Metamine is rather nontoxic to laboratory animals. The authors did not study chronic toxicity of the drug. Merlen [8] studied the drug in dogs, mice, and isolated organs, and the conclusions paralleled those of Melville and Lu.[7]

It has generally been the accepted theory that the vasodilator mechanism of the organic nitrates is due to the release of nitrate ions by hydrolysis. Many investigators, including Krantz and his co-workers,[9] tend to dispute this theory and suggest that the dilator effect of nitrates does not depend exclusively on hydrolysis of nitrate into nitrite ions, and the very rapid effect produced by glyceryl trinitrate and Metamine in Melville and Lu's [7] experiments tend to confirm this. In fact, their in vitro experiments demonstrate that Metamine is much less readily hydrolyzed than glyceryl trinitrate, supporting the view that the drug's effect is as a nitrate, rather than a result of nitrate-to-nitrite conversion. Metamine, they conclude, like glyceryl trinitrate, produces direct coronary vasodilatation. They are, however, unable to explain the fact that, although equally as effective as glyceryl trinitrate as a coronary vasodilator, Metamine is far less effective as a depressor agent. They offer the theory that, since the soluble biphosphate was used in these studies, its greater solubility could be responsible for its greater vasodilator action.

CLINICAL INVESTIGATIONS OF METAMINE

Spühler,[2] Poumailloux and Tetreau,[3] Pfeiffer,[5] Merlen,[8] Bovet and Bovet-Nitti,[4] Gerstlauer,[10] Dailheu-Geoffroy,[11] and Palmer and Ramsey [12] have all studied the effectiveness of Metamine in selected cases of angina of effort and in severer forms of myocardial ischemia.

Spühler [2] used the drug in 82 patients suffering from varying degrees of coronary insufficiency. He concluded that 35% demonstrated improvement to the degree of freedom of symptoms, 40% were considerably improved, 8.5% showed slight improvement, and 16.5% showed none. He found the drug easily tolerated and side-reactions infrequent. Irritation of the oral mucosa occurred when the drug was chewed, and mild gastrointestinal disturbance was reported. Less frequently, palpitations, flushing, and vertigo were observed. One patient in the series demonstrated an urticarious skin eruption that disappeared when therapy was withdrawn; this patient also was apparently allergic to other drugs of the nitrate and nitrite series. At no time did Spühler detect signs of chronic intoxication with the development of methemoglobinemia or other blood dyscrasias.

Poumailloux and Tetreau [3] investigated Metamine clinically in patients with moderately severe and severe angina, most of whom showed changes in electrocardiographic pattern before and after exercise. They carefully avoided patients having a history of recent myocardial infarction or congestive heart failure. These workers were the first to vary the dosage from 6 mg. up to 12 mg. in divided doses in 24 hours. They also used adjunct therapy, such as sedatives, glyceryl trinitrate, and drugs of the aminophylline series. Their series was small, a total of 18 patients, and results were based on subjective improvement of patients with varying doses of the drug. For controls, they used the same patients, substituting a placebo tablet. They concluded that the drug was most effective in the milder types of angina and that its effect as a coronary vasodilator lasted several days after drug therapy was stopped. They felt that its best value lay in prevention of nocturnal attacks, and the optimum dosage they recommended was between 9 and 10 mg. in 24 hours. They saw no untoward reactions in their series and suggested that, because of this, larger doses might produce better results.

Gerstlauer [10] treated 21 patients with angina pectoris, 13 of whom were considerably benefited by Metamine; he also reported on 2 patients who failed to demonstrate typical electrocardiographic changes after the institution of Metamine therapy in exercise tolerance tests, such changes having been observed prior to the institution of therapy. Merlen [8] used Metamine therapy on eight patients with angina, all of whom presented typical electrocardiographic changes before and after exercise tests. He reported on five with considerable improvement, one with moderate improvement, one with slight improvement, and one unimproved. He also reported the delayed or latent interval from the onset of therapy and after its discontinuance. In the five patients who were markedly improved, a sharp reduction in the number of glyceryl trinitrate tablets used was observed.

Dailheu-Geoffroy [11] reviewed the literature and treated 27 patients for a period of four months. In a total of 24 patients improvement was reported; in 3 patients there was complete failure. It was suggested that the effective duration of therapy with Metamine in dosage of 2 mg. was between two and five hours and that a small concomitant dose of glyceryl trinitrate might be beneficial.

Palmer and Ramsey [12] studied five patients who were considered to have coronary arteriosclerosis, which caused five or more attacks of pain daily and was relieved by rest or glyceryl trinitrate. All patients demonstrated the typical electrocardiographic changes on exercise tolerance testing, and three gave a history of myocardial infarction in the previous three years, but not within six months. Their investigation lasted five months, and the patients themselves were used as controls with the use of placebo tablets. Subjective improvement was noted by all five patients, and each of them, while on therapy of 8 mg. daily of Metamine, demonstrated marked reduction in daily attacks. They reported a lag of at least two days after therapy had been started before improvement occurred and likewise noted a continued benefit two days after therapy was discontinued. One patient developed a coronary occlusion two weeks after drug therapy was stopped, but it was felt this had

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8. Merlen, J. F.: Action du biphosphate de trinitro-triéthanolamine dans l'angine de poitrine et l'artérite oblitérante, Thérapie 6: 223, 1951.

9. Krantz, J. C., Jr.; Carr, C. J.; Forman, S. E., and Ellis, F. W.: Alkyl Nitrites: Pharmacologic Study of New Series of Organic Nitrites, J. Pharmacol. & Exper. Therap. 67: 187, 1939.

10. Gerstlauer, E.: Ueber die Behandlung angiospastischer Zustände mit Nitro-Tabletten Schering, Med. Klin. 45: 73, 1950.

11. Dailheu-Geoffroy, P.: L'angine de poitrine, étude étiologique, pathogénique et thérapeutique, Vie méd., Aug., 1949; Action comparée de la pentanitrine et des outres vasodilatateurs coronariens dans l'angine de poitrine, Ouest méd., no. 13 (July 10) 1950; Action du biphosphate de trinitro-triethanolamine dans l'angine de poitrine, Clinique 46: 27, 1951.

12. Palmer, J. H., and Ramsey, C. G.: Triethanolamine Trinitrate (Metamine) in the Treatment of Angina Pectoris: A Preliminary Report Canad. M. A. J. 65: 17, 1951.

no relation to the drug and its use. These workers did not investigate blood pressure and electrocardiographic changes, nor did they vary their drug dosage in any way. Their final conclusions were that the results so obtained were sufficiently promising to warrant further and more extensive clinical study.

TABLE 1.—*Chart for Recording Data on This Study*

"Metamine" Survey
Experiment No. 5623-7

Patient's Subjective History Date..................
Name............................ Address..............................
Present Occupation................ Previous Occupation......Unit No....

Background Information: (Answer Briefly)

1. A. How long have you known of this heart condition?..............
   B. How long have you had these attacks?..........................
2. A. Have you ever been hospitalized for heart disease? ....
   B. Have you ever been hospitalized for a very severe attack of chest pain which was relieved by medications?...................
3. Do you have high blood pressure?......................................
4. Do you have any shortness of breath on exertion?.....At rest?.....
5. How many pillows do you sleep on at night?.......................
   Can you sleep flat?..
6. Do you have any swelling of the feet or ankles?...................
7. Have you ever had an electrocardiogram?..........................
8. Have you ever had an exercise test?................................
9. Have you been forced to change your way of life, job, and/or physical activity because of attacks?.............................
10. What other physical diseases or ailments do you have?.............
    ....
11. What is the name and address of your present physician?..........
    ....

Information Re Attacks:

1. What is the least amount of effort or exertion that brings on an attack? ....
   ....
2. How often do attacks occur?.......................................
3. Are they always associated with exertion?..........................
4. How much exertion?...
5. Is it always the same with each attack?...........................
6. Do attacks occur without exertion: i. e., sitting in a chair, or lying in bed?..
7. How severe are the attacks, on the average? (mild, moderate, severe, incapacitating)...
   ....
8. Is there any relationship to: Meals?..........Emotions?..........
   Weather?.......... Fatigue?.......... Other factors?..........
   ....
9. Where does the pain radiate? *Chest?*.......... *Left arm?*.........
   Right arm?............. Jaws?............. Shoulders?.............
   Back?............. Abdomen?.....................................
10. Is the pain always the same?......................................
11. Do you take nitroglycerin?................. If so, how many on a good day?................ On a bad day?................ In a week or a month?...
12. A. Do you now take any other drugs for *relief of* or *prevention* of attacks?...
    B. If so, what drug?...
    C. How often is it taken?..
13. A. What drugs have you taken in the past, other than nitroglycerin, for relief of or prevention of attacks?................
    ....
    B. How do they compare with the drug, if any, you are now taking for that purpose?.......................................
    ....
14. Do you take any other medications?..................................
    (Please describe in detail)
    ....
    ....
    ....

TABLE 2.—*Chart for Recording Data on This Study*

FOR PHYSICIAN'S USE ONLY

Date.................
Name.. Unit No.............

History: (Summary of positive findings)	Physical examination: (Summary of positive findings)
....	....
....	....
....	....
....	....

Cardiac fluoroscopy:...
....
Electrocardiogram: ....
....
Exercise test:...
....

Other laboratory data:	Date	Results
....	....	....
....	....	....
....	....	....
....	....	....
....	....	....
....	....	....

Cardiac diagnosis:
A. Etiological ....
B. *Anatomical* ....
C. *Physiological* ....
D. Functional ....
Date............................ By..............

Previous treatment for angina: (enumerate drugs used and in use and their relative effectiveness)
....
....
....
....M.D.

PRESENT CLINICAL STUDY

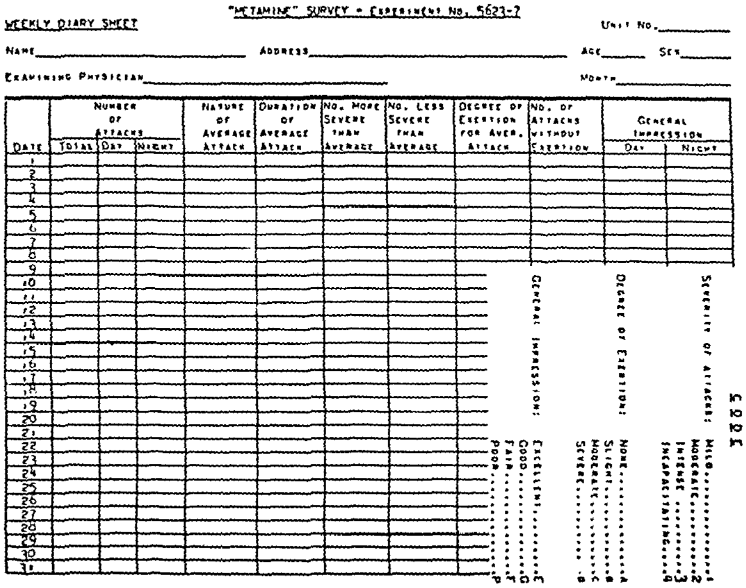
In all, 71 patients were studied in the present series. They were obtained from private practices, homes for the aged, and outpatient clinics. Fifty-one had known histories of angina for periods varying from six months to 11 years; 20 patients had never had previous treatment for coronary artery disease. Their ages ranged from 36 to 78 years. Forty-nine were males and 22 were females. All were considered to have arteriosclerotic coronary disease. Twenty-three patients had at one time undergone exercise tolerance tests of varying types and demonstrated the characteristic electrocardiographic changes of coronary insufficiency. Nineteen had one previous attack of myocardial infarction, proved electrocardiographically, but none had a proved infarction within the previous year. Fifty per cent were actively employed in mild sedentary occupations, and the remainder were retired because of age and/or their coronary disease. Nineteen patients were diabetic and under good regulation. Thirty-three were hypertensive or gave a history of hypertension in the past. Patients with known syphilitic aortitis with anginal syndrome were eliminated from the study. Patients whose symptoms were proved or suspected to be purely psychosomatic in origin and in no way associated with coronary artery disease were also eliminated, as were those with preexisting and uncontrolled congestive heart failure.

Each patient studied underwent a complete investigation, recorded on charts prepared specifically for this study (tables 1 and 2). As well as the usual history, specific information relating to this study, with particular reference to the patient's attacks, was recorded. Fluoroscopic and x-ray examination of the heart, electrocardiograms, exercise tolerance tests, and other laboratory data were also recorded. The patient was carefully questioned regarding any previous vasodilator drugs used, including glyceryl trinitrate, their dosage, duration of use, and their effectiveness in the prevention and relief of angina.

The patient was given a daily diary sheet (fig. 1) in which he was instructed to record the following data: (*a*) total number of attacks during the day or waking hours; (*b*) total number of attacks at night or during sleep; (*c*) the nature of the average attack during the day or night; these were graduated as mild, moderate, intense, and incapacitating; (*d*) the number of glyceryl trinitrate tablets taken in 24 hours; (*e*) the duration of the average attack during the day or night; (*f*) the number of attacks felt to be severer than average and the number less severe than average; (*g*) in attacks resulting from exertion, the degree of activity required, graduated as slight, moderate, and heavy; and (*h*) the patient's general impression of each day, with reference to the attacks, comparing it with an average good or average bad day; also recorded was the effect the attacks had on his sleep at night.

At the outset, all patients were divided into three groups as follows: Group A—those on therapy with another long-acting vasodilator for at least three months. Some of these were pentaerythritol tetranitrate, mannitol hexanitrate, erythrityl (Erythrol) tetranitrate, papaverine, and khellin. Almost all of these patients took glyceryl trinitrate along with their long-acting vasodilators. This group includes the severest cases in the series. Group B—patients with milder cases, taking only glyceryl trinitrate either prophylactically or for relief of attacks and who were not taking any other nitrate or nitrite at that time or for three weeks prior to this phase. Group C—patients with mild cases, who were able to control their attacks by mere restriction of activity and who had never been on therapy with any nitrate or nitrite at any time, including glyceryl trinitrate.

Phase 1 (Pre-Metamine Phase).—In order to determine a base line in each case with regard to the number of attacks and the glyceryl trinitrate requirement, these three groups were permitted to carry on as they had in the recent past for a three week period. In each instance the diary sheet was carefully kept and evaluated at the end of the three week phase and the veracity of the diaries investigated.



"METAMINE" SURVEY – EXPERIMENT No. 5623-?

WEEKLY DIARY SHEET

UNIT NO.________

NAME________ ADDRESS________ AGE____ SEX____

EXAMINING PHYSICIAN________ MONTH________

DATE	NUMBER OF ATTACKS			NATURE OF AVERAGE ATTACK	DURATION OF AVERAGE ATTACK	NO. MORE SEVERE THAN AVERAGE	NO. LESS SEVERE THAN AVERAGE	DEGREE OF EXERTION FOR AVER. ATTACK	NO. OF ATTACKS WITHOUT EXERTION	GENERAL IMPRESSION	
	TOTAL	DAY	NIGHT							DAY	NIGHT
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
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18											
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21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											

CODE

GENERAL IMPRESSION:
EXCELLENT..........E
GOOD..........G
FAIR..........F
POOR..........P

DEGREE OF EXERTION:
NONE..........A
SLIGHT..........B
MODERATE..........C
SEVERE..........D

SEVERITY OF ATTACKS:
MILD..........1
MODERATE..........2
INTENSE..........3
INCAPACITATING..........4

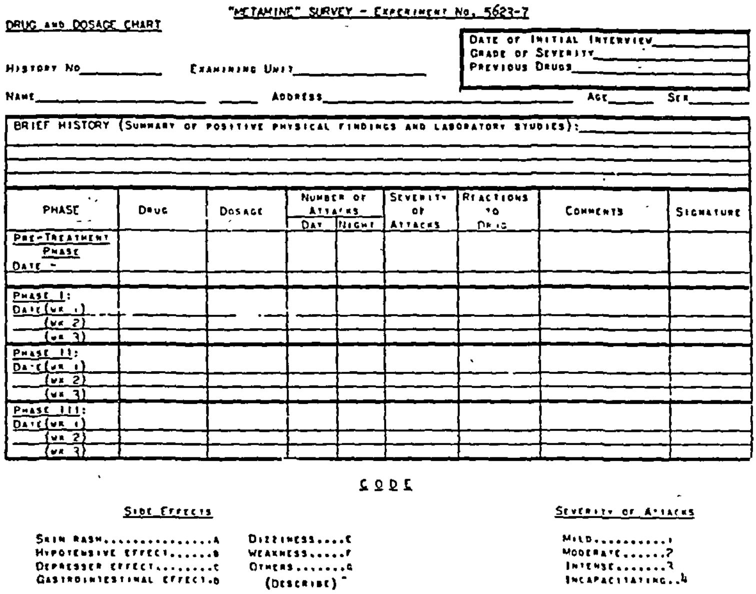
Fig. 1.—Daily diary sheet.

Phase 2 (Placebo Phase).—In group A, these patients were placed on a three week trial with placebo. This was carried out with caution and the patients were permitted to take as many glyceryl trinitrate tablets as required. Patients severely incapacitated by this step were immediately taken off the placebo regimen and passed on into phase 3 (Metamine phase); in the entire series it was necessary only in 12 patients to follow this change of procedure. In groups B and C the patients were instructed to take the placebo in quantity comparable to what we expected to use later with Metamine. They were informed that it was a new drug whose value for the relief of their symptoms was being tested and that it was completely harmless and might be beneficial. The importance of their own suggestibility was stressed, as was its relative effect on the study. Group B patients were told to take glyceryl trinitrate freely as before. Group C patients were not given glyceryl trinitrate.

Phase 3 (Metamine Phase).—This phase, in the patients in groups B and C, was begun in the seventh week of the study and, in one-third of our patients, has continued for at least six months. The 12 group A patients whose cases were aggravated by placebo were seen at least once weekly, and the initial dose of Metamine (2 mg. four times daily) was increased until a maximum dosage of 24 mg. daily, in some cases, was achieved. The total daily dose was increased depending on severity of symptoms, number of attacks, and the degree of incapacity. The rest of the group A patients also received gradually increased doses depending on symptoms, but the change in dosage was made at three week rather than weekly intervals. This also applied to groups B and C. The majority of group C experienced no difficulty and continued on therapy of 2 mg. four times daily for varying periods.

EVALUATION

After a review of the patient's diary, the relative effectiveness of Metamine was discussed with the patient at termination of the final phase. No attempt was made to influence the patient to use a vasodilator other than the one formerly used. The final decision was made by the patient himself and his physician.



"METAMINE" SURVEY - EXPERIMENT No. 5623-7

DRUG AND DOSAGE CHART

DATE OF INITIAL INTERVIEW________
GRADE OF SEVERITY________
PREVIOUS DRUGS________

HISTORY NO________ EXAMINING UNIT________

NAME________ ADDRESS________ AGE____ SEX____

BRIEF HISTORY (SUMMARY OF POSITIVE PHYSICAL FINDINGS AND LABORATORY STUDIES):________

PHASE	DRUG	DOSAGE	NUMBER OF ATTACKS		SEVERITY OF ATTACKS	REACTIONS TO DRUG	COMMENTS	SIGNATURE
			DAY	NIGHT				
PRE-TREATMENT PHASE DATE -								
PHASE I: DATE (WK 1)								
(WK 2)								
(WK 3)								
PHASE II: DATE (WK 1)								
(WK 2)								
(WK 3)								
PHASE III: DATE (WK 1)								
(WK 2)								
(WK 3)								

CODE

SIDE EFFECTS

SKIN RASH................A
HYPOTENSIVE EFFECT.......B
DEPRESSOR EFFECT.........C
GASTROINTESTINAL EFFECT..D
DIZZINESS....E
WEAKNESS.....F
OTHERS.......G
(DESCRIBE)

SEVERITY OF ATTACKS

MILD..........1
MODERATE......2
INTENSE.......3
INCAPACITATING..4

Fig. 2.—Drug and dosage chart.

Each physician was provided with a drug and dosage chart (fig. 2) in which were recorded the various phases; the vasodilator used; the dosage; an average estimate, in the physicians opinion, of the true number of attacks; and severity of attacks. The physician also recorded any side-reactions, both subjective and objective, to any of the drugs used, with particular reference to Metamine, as well as his comments on the patient's veracity and his impression of the results of Metamine therapy. The physician was asked particularly to watch for skin eruptions, severe hypotensive changes and depressor effects, changes in blood picture, and gastrointestinal side-reactions. The physician was also asked his impression of the delayed or latent period of Metamine, both at the beginning and end of its use. A final summation was presented as to the effectiveness of the drug by each physician.

TABLE 3.—*Average Number of Attacks Daily*

	No. of Cases	Phase 1 (Pre-Metamine)	Phase 2 (Placebo)	Phase 3 (Metamine)
Group A	34	11.0	14.2*	5.5
Group B	17	5.5	4.7	2.0
Group C	20	2.0	3.0	1.0
	71	7.1	7.7	3.4

* Twelve patients in this group became too severely incapacitated to continue this phase longer than 7 to 10 days and they have been excluded from this average.

TABLE 4.—*Metamine Dosage and Evaluation*

	No. of Cases	Initial Daily Dose, Mg.	Final Daily Dose, Mg.	No. of Cases	
				Improved	Unimproved
Group A	34	8	12-24	29 (85%)	5 (15%)
Group B	17	8	8-20	13 (76%)	4 (24%)
Group C	20	8	8-16	16 (80%)	4 (20%)
	71			58 (82%)	13 (18%)

RESULTS OF THIS STUDY

In general, Metamine was quite successful in preventing attacks of angina pectoris. Tables 3 and 4 demonstrate its effectiveness clearly. Table 3 shows the daily average number of attacks for each group of patients in each phase of the study. The average number of glyceryl trinitrate tablets taken daily by the 42 patients who used this drug throughout the study was 7.0 for phase 1 (pre-Metamine), 9.8 for phase 2 (placebo), and 3.4 for phase 3 (Metamine). (Twelve patients in this group became too severely incapacitated to continue this phase longer than 7 to 10 days and they have been excluded from this average.) Table 4 demonstrates that higher daily dosages of Metamine were required to achieve the same degree of effectiveness in the severer cases. In the entire series, 82% of the 71 patients showed improvement with Metamine.

COMMENT

We are, of course, well aware of the difficulty of evaluating a vasodilator drug in the treatment of coronary artery disease because of the reliance on the method of subjective study. As Russek and co-workers[13] point out, "The inapplicability of animal observation to man, the element of subconscious bias, and the inaccuracy of clinical estimates of coronary reserve and coronary anoxia that are based on the symptom of pain . . ." make a project such as this difficult to evaluate. Russek used the exercise tolerance test as an attempt to avoid these difficulties in carefully selected cases. In the size of our series, such objective testing would be unwieldy and almost prohibitive, and therefore, as with Spühler,[2] Poumailloux and co-workers,[3] Merlen,[8] Dailheu-Geoffroy,[11] and Palmer and Ramsey[12] we were obliged to utilize, as carefully as possible, the patient's own views as evaluated by his physician.

We found that Metamine used in adequate dosage in a satisfactory number of patients effectively reduced the number of anginal attacks, tended to lessen the severity of the attacks, and sometimes prevented them entirely. Each dose, when effective, had an action which lasted from four to six hours. Metamine was not used as a substitute for glyceryl trinitrate, and the study indicated that Metamine used regularly diminished the frequency of use of glyceryl trinitrate.

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[13] Russek, H. I.; Regan, F. D., and Naegele, C. F.: 100% Oxygen in the Treatment of Acute Myocardial Infarction and Severe Angina Pectoris, J. A. M. A. **144**: 373 (Sept. 30) 1950. Russek, H. I.; Urbach, K. F., and Doerner, A. A.: Effect of Heparin in Cases of Coronary Insufficiency: Evaluation by Electrocardiographic Tests, ibid. **149**: 1008 (July 12) 1952. Russek, H. I.; Urbach, K. F.; Doerner, A. A., and Zohman, B. L.: Choice of a Coronary Vasodilator Drug in Clinical Practice: Evaluation of Effects by Electrocardiographic Tests, ibid. **153**: 207 (Sept. 19) 1953. Russek, H. I.; Zohman, B. L., and Dorset, V. J.: Objective Evaluation of Coronary Vasodilator Drugs, Am. J. M. Sc. **229**: 46, 1955.

In regard to dosage, we found the most clinically effective dose in the moderate cases to be 4 mg. four times daily and, commensurate with the severity of the case, the larger doses, when used, demonstrated very few side-effects. In comparison to the other vasodilators, it was apparent that Metamine, milligram for milligram, is more effective in the prevention of angina. The hypotensive action of the drug, in our opinion, is slight, and patients are able to tolerate large daily doses.

CONCLUSIONS

Metamine (the biphosphate salt of triethanolamine trinitrate) is a long-acting coronary vasodilator and is effective in the prevention of anginal pain. In comparison with other vasodilators, it is more effective, milligram for milligram. Intolerance to Metamine is rare. Undesirable side-reactions, such as skin, blood, and gastrointestinal manifestations, are rare. There is a very slight hypotensive effect, which is of no significance clinically. The results obtained are sufficiently promising to warrant further clinical studies in three directions: (*a*) in the prevention and relief of attacks of acute coronary insufficiency, in either oral or parenteral form; (*b*) in the use of the drug in myocardial infarction for the purpose of offsetting reflex coronary vasoconstriction of the unaffected vessels, reducing pain and possibly reducing the extent of the infarction; and (*c*) in investigation with a sustained-release modification of Metamine, with the purpose of prolonging the effect of the drug and reducing the number of tablets that would be necessary for daily medication.

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TRIGEMINAL NEURALGIA

TREATMENT BY SURGICAL DECOMPRESSION OF POSTERIOR ROOT

Robert Dean Woolsey, M.D., St. Louis

Back in 1888 Gowers[1] made some points that one should keep in mind even today when evaluating any procedure for curing trigeminal neuralgia:

> An attempt to estimate the true position of the surgical treatment of neuralgia is unfortunately beset with almost insurmountable difficulties, due to the fact that after many operations the pain has ceased, or been much lessened, for a time, but has afterward returned, and the cases have been published before sufficient time has elapsed to permit an opinion to be formed of the permanence of the effect. Moreover, the numerous cases in which there has not even been temporary relief are seldom published. In some instances, operation after operation has been submitted to by the patient under urgent compulsion of continued suffering, and the records of many cases illustrate very strikingly the need for caution in drawing any inferences from transient relief.

In 1891 Horsley,[2] performing a retrogasserian neurotomy, did an avulsion via the temporal approach, but his patient died seven hours later of shock. The search for surgical relief was continued. In 1901 Spiller and Frazier,[3] of Philadelphia, demonstrated conclusively that there would be no regeneration of the nerve fibers if the trigeminal root was cut proximal to the gasserian ganglion. Consequently, one could obtain a permanent cure. Frazier[4] further demonstrated, in 1925, that a differential section of the posterior root could be accomplished. By this procedure he was able to sever the maxillary and mandibular divisions and to preserve the ophthalmic division and the motor root. Since most neuralgias are confined to the lower two divisions of the trigeminal nerve, this method had a distinct advantage over total section of the posterior root, for it obviated the neuroparalytic keratitis that sometimes resulted after the earlier procedure.

The complications encountered after fifth nerve section have led to efforts to improve on Frazier's method. Sjöqvist[5] reported relief of trigeminal neuralgia by section of the descending tract of the trigeminal nerve in the medulla. This procedure eliminated the paresthesias that occur after nerve section, but it is an operation of considerably more magnitude than a nerve root section via the temporal route, an important consideration when one is dealing with the older patients, who most commonly develop trigeminal neuralgia. Dandy claimed certain advantages for posterior root section by the posterior fossa route. Paresthesias are uncommon when his method is used. He also claimed that the posterior fossa route had a distinct advantage over the temporal approach, since 10% of trigeminal neuralgia was associated with tumors of the cerebellopontile angle. This figure is to high, although such an association does occur. In fact, just such an occurrence led Taarnhøj[6] to an entirely new and different surgical procedure. He had found a small epidermoid tumor in the cerebellopontile angle of a 31-year-old man who was suffering from trigeminal neuralgia. He removed the tumor but was able to preserve

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1. Gowers, W. R.: A Manual of Diseases of the Nervous System, Philadelphia, P. Blackiston, Son & Co., 1888, p. 1167.

2. Horsley, V.; Taylor, J., and Coleman, W. S.: Remarks on the Various Surgical Procedures Devised for the Relief or Cure of Trigeminal Neuralgia (Tic Douloureux), Brit. M. J. 2:1139, 1191, 1249, 1891.

3. Spiller, W. G., and Frazier, C. H.: The Division of the Sensory Root of the Trigeminus for the Relief of Tic Douloureux: An Experimental, Pathological, and Clinical Study: With a Preliminary Report of One Surgically Successful Case, Philadelphia M. J. 8:1039, 1901.

4. Frazier, C. H.: Subtotal Resection of Sensory Root for Relief of Major Trigeminal Neuralgia, Arch. Neurol. & Psychiat. 13:378, 1925.

5. Sjöqvist, O.: Eine neue Operationsmethode bei Trigeminusneuralgie: Durchschneidung des Fractus spinalis trigemini, Zentralbl. Neurochir. 2:274, 1938.

6. Taarnhøj, P.: Decompression of the Trigeminal Root and Posterior Part of Ganglion as Treatment in Trigeminal Neuralgia: Preliminary Communication, J. Neurosurg. 9:288, 1952.

the fifth nerve root intact. The patient was completely relieved of pain and remained symptom-free. Taarnhøj then considered just where the fifth nerve could be compressed in the normal course from the emergence of the nerve root at the upper edge of the pons to the emergence from the base of the skull. He decided that compression could happen only at the point where the nerve enters the dural envelope, which covers a part of the posterior root and the gasserian ganglion at the apex of the petrosal bone. He then attempted to cure a patient of typical trigeminal neuralgia simply by opening the dural sheath over the posterior root and leaving the root completely decompressed. He accomplished this by an intradural temporal fossa exposure. In May, 1952, he reported on eight patients whom he had treated in this fashion. All patients had had relief of pain. The same procedure has been done extradurally by Love, Gardner, and others, with equally good immediate results.

ETIOLOGY

The etiology of trigeminal neuralgia continues to be unknown. The disease occurs most commonly in the sixth, seventh, and eighth decades of life. It is rare in persons under 30. Women have the disease slightly more frequently than men, and it is commoner on the right side than on the left. The mandibular and maxillary divisions are commonly involved; the ophthalmic division is seldom affected.

For the past half-century little thought had been directed to the cause of trigeminal neuralgia. Surgeons had been content to develop the techniques of posterior root section and had almost lost sight of the phenomenon of cause and effect. Taarnhøj [6] changed all of this. He considered that some form of nerve root compression must be operative and on that assumption obtained relief for his patients. Others have contended that the relief resulted simply from trauma in and about the region of the posterior root. Shelden [7] has been content to expose the gasserian ganglion and merely to traumatize it, not decompressing the posterior root. Schwartz [8] has opened the dural covering of the gasserian ganglion and lifted the nerve fibers out of the cavum mecklii. Most of their patients have had relief. Gardner [9] has tried to explain the mechanism of trigeminal neuralgia. As one ages, he believes, there is a relative basilar impression, or mild form of platybasia, in which the petrous tips are pushed upward. He has shown that a significantly large percentage of his patients had a higher petrous tip on the side of the neuralgia than on the opposite side, as measured by anteroposterior roentgenograms of the skull. As the petrous tip is pushed upward, the posterior root of the fifth nerve is stretched. Gardner further believes that there is a short circuiting of the nerve fibers at the point where the posterior root passes beneath the petrosphenoid fold in the dura. He postulates parasympathetic fibers in the fifth nerve and a short circuit between these and the sensory fibers. He has adduced interesting experimental work on cats to support his thesis of a short circuit. Love [10] and the Mayo Clinic group concluded that trauma is not a factor. They found no appreciable difference in the recurrence rate between the patients who had hypesthesia (i. e., evidence of operative trauma to the nerve root) and those who had no hypesthesia.

Furthermore, I have had three patients who had differential sections of their posterior roots for mandibular and maxillary division neuralgias, with relief of pain for two years in two patients and three years in the other. The pain subsequently returned in the ophthalmic division in all three. As will be indicated below, under Results, all three of these patients have obtained relief of their ophthalmic branch neuralgia by means of decompression procedure. Trauma may be a factor in relieving neuralgia, but any surgeon who has had experience with the differential section knows that the trauma involved in sectioning the lower two branches is not sufficient to insure permanent relief in the ophthalmic division.

SYMPTOMS AND SIGNS

Trigeminal neuralgia is initiated by sudden, severe, lancinating pains occurring in one or more divisions of the fifth nerve. This pain rarely, if ever, crosses the midline. When an attack of trigeminal neuralgia strikes a patient, he usually stops what he is doing. He holds the side of his face and waits for the pain to stop before continuing his activity. Often there is a trigger area at *the vermilion border of the upper lip. Pain is set off when* one touches this trigger point with hand or food. Consequently, some patients have great difficulty in eating. Some, because they cannot bear to wash the face, appear with one division of the facial area unwashed or, if they are men, unshaven. The pain usually vanishes as suddenly as it appeared. There is no hypesthesia or anesthesia. The attacks are commoner in the daytime than at night; rarely do they keep the patient awake. Between attacks, when the patient demonstrates his pain to the examiner, he usually points with one finger to the course of the pain. One should doubt the diagnosis of trigeminal neuralgia when the patient shows the course of his pain by laying his whole hand on the side of his face. Although these attacks may come at any time of the year, they seem to be commoner in the spring and fall, in times of changing weather, than at other periods.

DIFFERENTIAL DIAGNOSIS

The diagnosis and differential diagnosis of trigeminal neuralgia are made by exclusion and by history only. There are no abnormal physical findings. One should always consider the Costen [11] syndrome, and one should x-ray the mandibular joint. Usually one can make the diagnosis of Costen's syndrome by inspecting the mouth. A patient who has long been without the posterior molars, of either the upper or the lower jaw, should have his bite mechanism corrected.

The pain of temporomandibular joint disease is more *diffuse than that of trigeminal neuralgia. The joint is* tender. There is pain over the origin of the temporal

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7. Shelden, C. H.: Surgical Decompression in the Treatment of Trigeminal Neuralgia, read before the Harvey Cushing Society, Santa Fe, N. Mex., May 7, 1954.

8. Schwartz, H. G.: Gasserian Gangliolysis for Trigeminal Neuralgia, South. M. J. **48**: 189, 1955.

9. Gardner, W. J., and Pinto, J. P.: The Taarnhøj Operation: Relief of Trigeminal Neuralgia Without Numbness, Cleveland Clin. Quart. **20**: 364, 1953.

10. Love, J. G., and Svien, H. J.: Results of Decompression Operation Trigeminal Neuralgia, J. Neurosurg. **11**: 499, 1954.

11. Costen, J. B.: The Present Status of the Mandibular Joint Syndrome Otolaryngology, Tr. Am. Acad. Ophth. **56**: 809, 1951.

muscle. *Quite often the pain can be relieved by inserting* rubber corks between the posterior molars and having the patient bite down and close the jaws, thus pulling apart the articulating surfaces of the temporomandibular joint. Such relief is uncommon in trigeminal neuralgia. For my part, a person has trigeminal neuralgia, not temporomandibular joint syndrome, if he complains of sudden, severe, lancinating pain which he has had over a period of years and if his dentist has done considerable manipulation of the temporomandibular joint. Usually the two conditions can be definitely differentiated, and there is little point in subjecting the patient suffering from definite severe trigeminal neuralgia to further manipulations of the temporomandibular joint mechanism. It is becoming increasingly clear that the differential diagnosis of trigeminal neuralgia and the temporomandibular joint syndrome should be made more frequently. It should not be necessary to tamper with the bite mechanism of every patient with typical facial neuralgia. Naturally, a set of bite-raising appliances will bring relief for a while, but not for long. Making such appliances takes time; and, if one waits long enough, as in the medical treatment with stilbamidine or cyanocobalamin (vitamin B_{12}), the pain will temporarily subside. Surgeons are now operating on many patients on whom these bite-opening techniques were applied. Had therapy been directed at the posterior root in the first place, the patients would have been spared a great deal of time, money, and excruciating pain.

Sinus disease may cause attacks similar to those typical of trigeminal neuralgia. Roentgenograms should be taken of the sinuses of every patient suspected of having trigeminal neuralgia to rule out such conditions as acute and chronic sinusitis and carcinoma involving the mucosa of the sinuses. Tumors invading the floor of the skull from the nasopharynx may cause pain similar to that typical of trigeminal neuralgia. However, this pain is usually constant and is accompanied by paralysis of the nerve and anesthesia of the corresponding area. Tumors of the cerebellopontile angle usually have other accompanying neurological signs, such as deafness, tinnitus, and vertigo.

Migraine is usually characterized by visual symptoms and is prolonged, although limited to one side. Histaminic cephalalgia, involving the whole side of the face, occurs commonly at night. It is characterized by unilateral lacrimation and nasal discharge on the side of the pain. It is very difficult to confuse this disease with typical trigeminal neuralgia. This pain can be brought on by subcutaneous injections of histamine and is relieved by injections of epinephrine.

CONSERVATIVE THERAPY

Stilbamidine has recently been reported by Smith and Miller [12] as having a beneficial effect upon the course of trigeminal neuralgia. Nearly every patient with trigeminal neuralgia who has entered my office recently has carried a clipping from the local newspaper or a recent copy of *Time* describing the wonders of this form of therapy. On reading the article, one finds that the drug was given over a period of one week and then discontinued. The pain usually subsided about a month later. *Had sterile water been used, one could predict approximately the same results.* Trigeminal neuralgia commonly comes and goes, and *post hoc, ergo propter hoc* reasoning has led to marvelous cures being ascribed to a great many drugs.

Trichloroethylene was used by Plessner,[13] and it has given relief in certain instances. During World War I it was discovered that some persons who had been working with trichloroethylene in German aircraft factories had developed unilateral paralysis of the trigeminal nerve. Trichloroethylene was used for relieving trigeminal pain, and in a small percentage of patients did give temporary relief.

A considerable degree of success has been claimed for cyanocobalamin,[14] given by mouth or, preferably, in massive injections intramuscularly. Virtually every patient on whom I have operated has been given multiple massive injections of cyanocobalamin. Usually they have given temporary relief. I believe that cyanocobalamin will eventually go the way of typhoid vaccines, smallpox vaccines, and all the other medical treatments that thus far have been brought forth in the therapy of this disease, for trigeminal neuralgia lends itself beautifully to statistical analysis. The disease comes and goes. Therefore, whatever agent is used, if it is used long enough, the neuralgia will spontaneously disappear for a time at least. Whether the agent is cyanocobalamin or sterile water, the result will be about the same, I think, for the patient attributes his relief to whatever he has been doing or taking just before the attacks disappear.

Certain other measures have been advocated and carried out in the past for patients with trigeminal neuralgia. In some clinics alcohol injection has been used before nerve section to accustom the patient to the numbness and paresthesias that he may experience after nerve section. In my opinion, alcohol injection is a difficult procedure, which carries considerable discomfort to the patient. It should be limited to patients for whom no surgical therapy can be advised—persons so debilitated and so old that any surgical procedure is prohibited. Furthermore, certain difficulties with alcohol injection make its use prohibitive. A patient with genuine trigeminal neuralgia almost certainly will come to surgery sooner or later. *If a good result is accomplished with* alcohol injection, the fibers of the gasserian ganglion are matted together and scarred by the alcohol. Such matting and scarring make it very difficult for the surgeon to accomplish an accurate differential section or a decompression of the posterior root. Furthermore, alcohol injection rarely, if ever, cures the disease. Avulsion of the peripheral portions of the nerve at the supraorbital, infraorbital, or mental foramen has been practiced. Its most important use is in patients whose trigeminal pain originates in the ophthalmic division. Avulsion of the peripheral branch is purely a temporary measure, as the pain usually recurs within six months.

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[12] Smith, G. W., and Miller, J. M.: The Relief of Tic Douloureux with Stilbamidine, Ann. Int. Med. 38:335, 1953.

[13] Plessner, W.: Über Trigeminuserkrankung infolge von Trichloräthylenvergiftung, Berlin klin. Wchnschr. 53:25, 1916.

[14] Surtees, S. J., and Hughes, R. R.: Treatment of Trigeminal Neuralgia with Vitamin B12, Lancet 1:439, 1954.

section of the trigeminal nerve, occurs about as frequently after this decompression procedure as after the old nerve-cutting procedure. So far as I know, there is no reason accounting for this paralysis. One of the three patients with peripheral paralysis of the seventh nerve responded well to cortisone. The other two responded poorly. In the patient who appeared to be benefited, the paralysis cleared completely in two weeks.

COMMENT

Taarnhøj has reported on 118 patients followed for from one to 43 months after operation. Two had no relief of pain. Further surgical intervention was necessary for relieving pain in eight patients: exeresis of the infraorbital nerve in one; posterior root section in one; a second decompression in six. One of these patients with a second decompression had further pain, and a posterior root section was necessary. Seventeen patients had some peculiar feelings, as if they were going to experience an attack, but had no further neuralgic pain. Fourteen had some uncharacteristic discomfort of the face.

In an earlier report, Taarnhøj [15] had divided persons with facial pain into three groups: those with typical trigeminal neuralgia, those with atypical trigeminal neuralgia, and those with atypical facial pain. Of 43 patients with typical trigeminal neuralgia, 4 had recurrences after decompression, 3 a few minor attacks, 3 some uncharacteristic pain, and 33 no pain. Reoperation was done in three patients—a second decompression in two, and root section in the third. Of the 27 patients with atypical trigeminal neuralgia, 15 obtained relief, and 12 had further difficulty. Two required an operative procedure. Of the six patients with atypical facial pain, three had no relief, two had recurrences, and one had relief of pain. Cleveland [16] has done the decompression procedure on 47 patients for primary trigeminal neuralgia. He has had to reoperate on five and do posterior root sections. In a series of 100 patients treated by the extradural approach described by Love,[17] 58 patients obtained relief of pain, 31 had recurrence of pain, and for 11 the results were indeterminate. Of the 31 patients with recurrence of pain, 8 have had posterior root section, 4 have had alcohol injection, and the others have carried on without further intervention. Love does not indicate the types of neuralgias treated, i. e., whether some were atypical or not. In an earlier report, Love and Svien [10] analyzed a group of 10 patients who did not get relief and stated that "most of these did not have real typical trigeminal neuralgia." This group of 10 patients occurred in a series of 39 patients. Abbott [18] has done 23 decompression procedures, with recurrences in 2 instances.

I cannot account for the fact that trigeminal pain has recurred in just one of my patients. In one detail only has my operative procedure varied from that performed by the foregoing authors: I have sectioned the dura over the gasserian ganglion as well as over the posterior root. I hardly believe that this modification could account for lack of recurrences, but it could lend credence to Shelden's [7] theory that all that is necessary for relief of trigeminal neuralgia is a certain amount of trauma to the fibers as they pass through the gasserian ganglion.

Secondly, I have tried to limit the procedure severely to patients in whom there was no question about the diagnosis. All of these patients had sudden onset of sharp, lancinating pain that radiated over one or more divisions of the fifth nerve and then ceased just as suddenly. In only one instance was there any question as to the diagnosis. This was the third patient I mentioned—the one with several complaints other than her trigeminal neuralgia.

This patient raises the subject of atypical trigeminal neuralgia. I believe that there is no such thing. Either a patient has trigeminal neuralgia, which is a definite and typical syndrome characterized by sudden onset of sharp, shooting pain that ceases suddenly, or he does not have trigeminal neuralgia. I think that this patient did not have trigeminal neuralgia. Such patients do poorly no matter what surgical procedure is used on the fifth nerve. In my experience, the patients who did poorly with nerve root sections for their supposed trigeminal neuralgia were the ones for whom the diagnosis was in doubt.

There is one danger in the decompression procedure as I now see it. Because these patients can now be operated upon with little or no neurological deficit, the procedure may be more of an invitation to operation than was the old operation of nerve root section, with its possibility of paresthesia and with its definite anesthesia in the area involved. This procedure should not be used on persons with atypical neuralgias. It should be reserved for only those persons who have definite trigeminal neuralgia until it can definitely be evaluated. Results reported by Taarnhøj and Love support this contention.

It is still too early to evaluate this procedure finally. There currently is a good deal of discussion in neurosurgical circles over whether or not the relief obtained in these patients will be permanent. It seems to me that this discussion is now entirely academic and that the procedure should be done on patients with trigeminal neuralgia. Neurosurgeons are now at the same point with this procedure that Spiller and Frazier [3] must have been about two years after their first section of the posterior root for trigeminal neuralgia. They must have had some doubts as to whether or not the cure of trigeminal neuralgia by posterior root section would be permanent. The only way to tell whether the relief will be permanent is to do the operation and then await results. Obviously, only time will tell; but, in fairness to the patient, he should be given the benefit of this procedure, which will leave him with no neurological deficit, no loss of sensation in the face, and no paresthesias, in preference to the nerve-severing operation, until the nerve-severing operation becomes necessary.

Recurrences in the ophthalmic division after differential section of the maxillary and mandibular divisions constitute a very important argument in favor of the decompression procedure of Taarnhøj. Likewise, for persons having primary neuralgia of the ophthalmic

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[15] Taarnhøj, P.: Decompression of the Trigemina 11:299, 1954.

[16] Cleveland, D.: Personal communication to

[17] Love, J. G.: The Surgical Treatment pharyngeal Neuralgia: Decompression of t Its Root for Trigeminal Pain, J. Interna

[18] Abbott, K. H.: Personal communi

OPERATIVE PROCEDURE

The operative procedure is done extradurally through the temporal fossa, in the same manner as the posterior root section. A decompression incision is made anterior to the ear and just above the malar arch (fig. 1). The temporal muscle is incised and separated. A perforator opening is made into the temporal bone and enlarged to a little more than the size of a quarter. The dura is then separated from the floor of the temporal fossa. The middle meningeal artery is coagulated and cut at the foramen spinosum. The mandibular division is then identified and injected with procaine containing a minute amount of epinephrine. The dura is then separated farther up over the gasserian ganglion to expose the dural covering of the posterior root, where it is reflected from the dura proper. This point occurs at the petrosphenoid ligament.

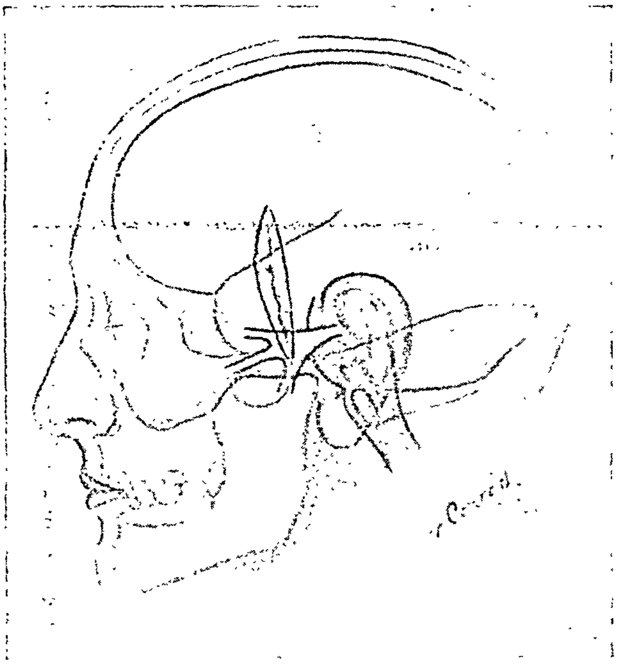
Fig. 1.—Location of incision for decompression procedure.

This procedure usually involves considerably more bleeding than did the old procedure of simply cutting the posterior root. When the posterior root is completely exposed, there is often considerable bleeding from the superior petrosal sinus and at the upper edge of the posterior root from the cavernous sinus. I have found this bleeding fairly easy to control using absorbable gelatin sponge U. S. P. (Gelfoam). When all bleeding has been controlled, an incision is made in the dura over the ganglion proper from the maxillary division back into the posterior root.

Then the petrosphenoid ligament is caught with small dural scissors and cut. The posterior root is completely decompressed, and one may look directly into the posterior fossa at the emergence of the fifth nerve from the anterior border of the pons (fig. 2). This view has the merit of enabling one to determine whether any tumor is present in the cerebellopontile angle, such as a tumor originating from the eighth nerve. After the nerve root is completely decompressed, a small piece of the gelatin sponge is placed over the decompressed area and the dura of the temporal fossa allowed to fall back in place. The wound is then closed in routine fashion.

RESULTS

I have carried out the foregoing operative procedure on 45 patients with severe trigeminal neuralgia. Subsequent results are as follows: No patient has died. Twenty-one, or about half, have had some hypesthesia on the involved side. This has lasted for three to six months. Forty-two patients have had complete and lasting relief of pain for two months to three years.

One patient showed fair results, but there has been some return of her trigeminal pain, although it has not been as severe as that before the operation. This person is not yet willing that her posterior root be cut. In one patient I was unable to separate the dura from the root and gasserian ganglion proper, and I had to cut the entire posterior root. A third patient had had a cerebrovascular accident on the side of her neuralgia. She had many complaints, such as dizziness and headache, besides her shooting neuralgic pain. Decompression of her gasserian ganglion and posterior root gave relief from her sharp, shooting pain; but, because she had no relief from her headaches and from her other difficulties, she accounted the operation a failure. Since then she has undergone a course of electric shock, and her family physician reports that she is much better. She, likewise, has normal sensation of the involved side of her face.

I have had three patients on whom differential sections had been performed previously. Results were good for two years in two of them, for three years in the other. Then their pain returned in the ophthalmic division. I sectioned the petrosphenoid ligament and dura over the posterior root. The procedure subsequently relieved their trigeminal pain while maintaining the continuity of the ophthalmic division. Pain lasted for six days after operation in one of these patients before it subsided. She has had no further episode in two years.

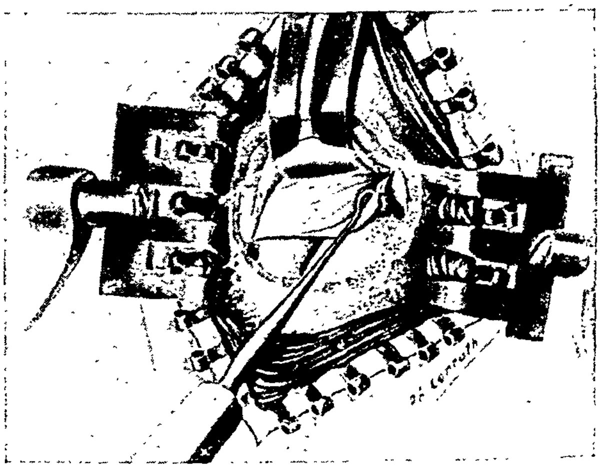
Fig. 2.—Gasserian ganglion and posterior root decompressed.

In this series of 45 patients, 3 have had temporary minor paralysis of their fourth nerve. These paralyses have cleared within six months. Temporary paralysis of the facial nerve, which has occurred in the past after the section of the trigeminal nerve, occurs about as frequently after this decompression procedure as after the old nerve-cutting procedure. So far as I know, there is no reason accounting for this paralysis. One of the three patients with peripheral paralysis of the seventh nerve responded well to cortisone. The other two responded poorly. In the patient who appeared to be benefited, the paralysis cleared completely in two weeks.

COMMENT

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There is one danger in the decompression procedure as I now see it. Because these patients can now be operated upon with little or no neurological deficit, the procedure may be more of an invitation to operation than was the old operation of nerve root section, with its possibility of paresthesia and with its definite anesthesia in the area involved. This procedure should not be used on persons with atypical neuralgias. It should be reserved for only those persons who have definite trigeminal neuralgia until it can definitely be evaluated. Results reported by Taarnhøj and Love support this contention.

It is still too early to evaluate this procedure finally. There currently is a good deal of discussion in neurosurgical circles over whether or not the relief obtained in these patients will be permanent. It seems to me that this discussion is now entirely academic and that the procedure should be done on patients with trigeminal neuralgia. Neurosurgeons are now at the same point with this procedure that Spiller and Frazier [3] must have been about two years after their first section of the posterior root for trigeminal neuralgia. They must have had some doubts as to whether or not the cure of trigeminal neuralgia by posterior root section would be permanent. The only way to tell whether the relief will be permanent is to do the operation and then await results. Obviously, only time will tell; but, in fairness to the patient, he should be given the benefit of this procedure, which will leave him with no neurological deficit, no loss of sensation in the face, and no paresthesias, in preference to the nerve-severing operation, until the nerve-severing operation becomes necessary.

Recurrences in the ophthalmic division after differential section of the maxillary and mandibular divisions constitute a very important argument in favor of the decompression procedure of Taarnhøj. Likewise, for persons having primary neuralgia of the ophthalmic branch, the decompression procedure should certainly be the procedure of choice before nerve-cutting techniques are resorted to. None of these patients has had paresthesias of the type formerly seen with nerve-severing techniques. There have been no instances of neuroparalytic keratitis.

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[15] Taarnhøj, P.: Decompression of the Trigeminal Root, J. Neurosurg. 11:299, 1954.

[16] Cleveland, D.: Personal communication to the author.

[17] Love, J. G.: The Surgical Treatment of Trigeminal and Glossopharyngeal Neuralgia: Decompression of the Gasserian Ganglion and Its Root for Trigeminal Pain, J. Internat. Coll. Surgeons 21:1, 1954.

[18] Abbott, K. H.: Personal communication to the author.

SUMMARY AND CONCLUSIONS

The decompression procedure of Taarnhøj will relieve trigeminal neuralgia. It is too early to be able to say how many patients undergoing such decompression will have to be subjected to nerve root section for final relief of pain. Until the procedure can be finally evaluated, the decompression procedure seems preferable to nerve-severing techniques. The Taarnhøj procedure is the surgical procedure of choice in persons presenting neuralgia of the ophthalmic division, whether a recurrence following differential section or a primary neuralgia of the ophthalmic branch. Paresthesias found in nerve-severing techniques are absent in this procedure. Neuroparalytic keratitis is avoided, and this point is of particular importance in persons with primary ophthalmic branch involvement.

6944 Chippewa (9).

TEACHING LEGAL MEDICINE IN THE UNDERGRADUATE MEDICAL CURRICULUM

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In the past years a great deal of emphasis has been placed on improving the existing coroner's system in this country to render better scientific investigation in deaths due to homicidal, traumatic, and unexpected natural causes. It has also been repeatedly stated that, in order to serve the community more effectively in matters pertaining to public safety and justice, the medical profession must take a more active role. This can be accomplished by the medical profession by proper technique and interpretation of medicolegal autopsy findings, including histological and bacteriological examination of the tissues, toxicologic examination of fluids and tissues, keeping adequate records admissible as evidence in the courts, assisting various branches of the law-enforcing agencies in the detection and deception of crime, and cooperating with the specialists in the fields of forensic psychiatry and immunology and the legal profession. In order to achieve these objectives, as well as to make available physicians who will have this information and experience to assist the coroner's and medical examiner's offices, we must have an educational program at the undergraduate teaching level. With a program recommended by the Committee on Medicolegal Problems of the American Medical Association to be considered in the curriculum of our medical schools, we will have a foundation for study and subsequent implementation of courses at the graduate and postgraduate levels. In this manner we, as physicians and as citizens, will render service to science, to law and justice, and to the community.

It is not my objective at this time to discuss the relative merits of the coroner's versus the medical examiner's system. The medical examiner's office in the few communities where it is now in operation is well organized, efficient in its scientific operation, and has contributed to the benefit of science, law-enforcing bodies, and the community. These offices are well staffed with competent pathologists and toxicologists and have contributed much in the field of research. Cleveland, Los Angeles, San Francisco, and New Orleans are isolated examples of places where the coroner's office has performed its function comparable to that of the medical examiner's office. There are other areas where changes in the scientific operation of the coroner's office are contemplated to meet the progress made in scientific and medical advancements. However, the majority of counties in this country operating under the existing coroner's system are inefficient. This may be partly attributed to the political aspects of this office and to the lack of informed and competent medical assistance to render effectively the service that the coroner's office requires. It makes little difference how the office is designated, but its proper functioning is dependent on competent scientific assistance. Such a program can only be achieved by the introduction into the medical curriculum of a teaching program in legal medicine.

WHAT HAS TAKEN PLACE

In European universities legal medicine has been included in the curriculum for more than a century. In the United States the first lectures on legal medicine were given by Benjamin Rush in 1811 at the University of Pennsylvania. In 1814, J. S. Stringham was the first professor of medical jurisprudence in the College of Physicians and Surgeons of New York. Since then there have been outstanding contributions by various physicians and scientists pertaining to legal medicine, and a considerable amount of research has been done by individual investigators in forensic pathology, toxicology, and immunology.

One might make an erroneous conclusion from this observation that we in the United States have made strides in teaching legal medicine to our medical students, thus preparing our doctors to be of service to the community in the application of law and justice. In fact we in this country have been derelict in the teaching of legal medicine in our medical schools in comparison to the European universities. Kozelka[1] says, "While the

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Chairman's address, read before the Section on Pathology and Physiology at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

[1] Kozelka, F. L.: Legal Medicine in the United States, Ciba Symposia 21: 1305 (Winter) 1950.

technological aspects of legal medicine have made phenomenal strides, the teaching of legal medicine in our universities and the implementation of this knowledge by adequate legal procedure has lagged lamentably. The early established medical institutions accepted the dictum that the function of medicine is not limited to the knowledge and cure of disease but comprises also the very important mission to protect life and property and to detect fraud and guilt. The teaching of legal medicine is generally limited to a one or two credit optional course and as a result the practicing physician is not prepared to perform one of his important functions in the community."

The physician engaged in general practice or one who specializes in a specific branch of medicine is called upon to render service in matters pertaining to public safety. The increasing complexity of civilization, the problems presented by congested urban areas, and our age of technocracy present an opportunity and a challenge for the integration of the medical sciences and law. In the administration of justice and in the enforcement of the law of the land, particularly as it applies to the forensic sciences, the physician must assume his responsibility as a citizen and as a responsible person who may be required to furnish medical evidence. Forensic medicine, or legal medicine, is that portion of medical knowledge that may be of assistance in serving the needs of law and justice. It is often thought of as concerning the medical aspects of criminal offenses, but it is also called on to render assistance in the adjudication of cases involving life and accident insurance, industrial compensation, soldiers' rehabilitation, and other civil court actions. Since medical evidence is very vital in the administration of justice, Moritz[2] has indicated very definitely that "Only a physician can supply the critical evidence required if justice is to be based on truth." This educational program should not begin at the graduate or postgraduate level but should be instituted in the undergraduate training curriculum.

REASONS FOR TEACHING LEGAL MEDICINE

In 1931 Dr. C. W. Muehlberger and I[3] inaugurated a 16 hour program in legal medicine at the University of Illinois College of Medicine. The subject material and demonstrations were in many regards similar to those reported in the recent survey of the Committee on Medicolegal Problems of the American Medical Association.[4] This survey reported that only 16 schools in this country offered adequate instruction in legal medicine. Our course was given to the senior medical students, and, since it was an elective course, it was limited to twenty-five students. Experts in forensic pathology, toxicology, immunology, psychiatry, law, and police sciences participated in this program. Other medical and law schools in our area adopted a similar program. Unfortunately, in recent years the subject of legal medicine has been discontinued from the curriculum in our medical schools in Chicago. Only 12 medical schools (Harvard, Tufts, Boston, Maryland, Virginia, Yale, Vermont, College of Medical Evangelists, University of Southern California, University of California in Los Angeles, University of California in Berkeley, and the University of Rochester) have required courses in legal medicine in the United States. Every medical student and physician should receive information in (*a*) what constitutes a coroner's or medical examiner's case and the manner for investigating the cause of death; (*b*) forensic pathology and the study of unexpected death and the problems encountered in the similarity and differentiation of traumatic and homicidal deaths; (*c*) forensic toxicology and the pathological changes that may result; (*d*) forensic immunology and the application of blood groups and serology in the detection of crime; (*e*) the application of forensic psychiatry in medical and legal practices; (*f*) demonstrations by law-enforcing bodies in the techniques used in crime detection and deception; (*g*) the importance of medical records in courts; and (*h*) the doctor as a medical expert witness.

All of these are basic materials of general interest and importance to every physician. Let us not overlook the fact that every patient under study by a physician in his office or hospital may be a potential medicolegal problem. Any accident, industrial or otherwise, or inhalation of noxious agents, may result in immediate or delayed injury resulting in inability to continue to work, or death. The physician in attendance in this instance can supply valuable information in the interest of public safety and justice. Any and all cases of accident, homicide, suicide, or attempted suicide first seen by the physician require not only knowledge in medical management but also his interpretation of the findings and his assistance in the administration of justice.

There are many examples one can cite to illustrate further the reasons why the medical student and physician should have this type of knowledge. Sudden and unexpected deaths present a challenge to every physician. What are the underlying anatomic changes that bring this about? Anesthetics and mismatched blood given in transfusions cause reactions; a patient in the hospital who is permitted to go to the bathroom suddenly collapses and dies; infants and children are found dead in their cribs; someone who receives a superficial bruise or who has eaten food that he claims gave him heart burn dies suddenly. The lay person is unable to comprehend these unexpected and sudden changes that affect members of their families, and quite often the physician is bewildered and can offer no explanation. I recall an episode where a patient was hospitalized because of anginal pains. According to the attending physician, the patient was progressing well, and he assured the patient and the family that within a few days the patient could go home. Then one day the patient experienced sharp substernal pain, developed a shock syndrome, and within 15 minutes died. The attending physician was in a predicament to explain to the family the sudden and unexpected death of the patient. The doctor did not know what had taken place; he was accused of negligence in the management of the patient and was threatened with a court suit for malpractice. Fortunately, an autopsy was permitted, and it revealed a spontaneous rupture of the heart and hemopericardium. The attending physician now had the information, from the autopsy findings, to interpret to the patient's relatives the cause for the sudden and unexpected death. Also these findings prevented the alleged malpractice suit.

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[2] Moritz, A. R.: Scientific Medicolegal Investigation in the Undergraduate Medical Curriculum, J. A. M. A. **158**:243 (May 28) 1955.

[3] Levinson, S. A., and Muehlberger, C. W.: Introductory Course in Legal Medicine for Medical Students, J. A. Am. M. Coll. **9**:293 (Sept.) 1934.

[4] Regan, L. J.: Physician and Patient, J. A. M. A. **158**:255 (May 28) 1955. Hall, G. E.: The Physician and the Law, ibid. **158**:257 (May 28) 1955.

INSTITUTES OF LEGAL MEDICINE

A great deal of emphasis has been given to efforts to improve the existing coroner's and medical examiner's offices. There is a need for trained forensic pathologists and toxicologists. Since many of the states do not have available pathologists, especially those trained in forensic pathology, the coroner's and medical examiner's offices must rely on practicing physicians to assist them in investigating deaths and, when indicated, in performing autopsies. In the interest of public welfare and health and criminal justice, the general pathologist and particularly the general practitioner who accepts such functions must appreciate what his responsibilities are in medicolegal problems. Where can such a training program be obtained? Where can one receive graduate and postgraduate work in this field? What areas and institutions are available where one may go for study and research, particularly if one desires to become a specialist in legal medicine?

In the United States there are no institutes of legal medicine comparable to existing institutes on the continent. There are isolated areas in large cities where the medical examiner's and coroner's office, in affiliation with medical schools, can offer a training program to physicians in advanced forensic pathology and toxicology. These are excellent training centers and are responsible for many of the highly trained specialists in these fields who have obtained positions in other localities. If we had institutes of legal medicine in areas where there are medical centers, we could coordinate and integrate the facilities available as well as the services of teachers and experts in the various branches of the forensic sciences, and we would have at all times an active teaching program in legal medicine. Institutes of legal medicine would be the center where physicians and lawyers could go for refresher courses and advanced study. Such institutes would become centers not only for the careful prosecution of necessary public work but also for the postgraduate training program of medical examiners and coroners' physicians and for the furtherance of medicolegal research.

Institutes of legal medicine would also be the centers of greatest service to their communities. In this country where we have made tremendous strides in industrial developments, we have stressed safety measures to the employees, but how much more effective this would be if industrial plants would utilize the institutes of legal medicine for study and demonstrations. In the Medicolegal Institute in Vienna there were demonstrations and exhibits illustrating the various aspects of electropathology, pneumonoconiosis, the effects of noxious agents, inhalation of dust and fumes, carbon monoxide intoxication and poisoning, alcoholism, lead poisoning, and the pathology of sudden, unexpected, and traumatic deaths. Housewives were invited to visit the institute to witness demonstrations of various electrical household equipment illustrating the dangers of faulty household gadgets and how to recognize them and thereby avoid accidents. There were also exhibits of medicine cabinets containing drugs showing accessibility of these to children, the effect drugs may have when ingested, how to prevent these occurrences, and what first-aid measures to give. One can visualize readily the effectiveness of such a program in the community, the benefits derived by industry, and the contribution to public health and safety.

In a few areas the medical examiner's and coroner's office have inaugurated on a limited scale some of the contributions offered by the continental institutes of legal medicine. The first chair of legal medicine in this country was at Harvard University. Innumerable contributions to legal medicine have come from the medical examiner's office. The investigations of T. Leary on coronary arteries and unexpected deaths due to heart disease have shed invaluable light on the physiology and pathogenesis of this condition. Our knowledge of radium necrosis of bone has been advanced by the researches of H. Martland. Others, independently interested in forensic science, have contributed important data to this field. The research of Ludvig Hektoen in immunology and K. Landsteiner in forensic immunology and blood grouping are classic contributions. The studies by LeCount, Moritz, and associates on the physiology and pathology of the effect of physical agents and trauma to the body and reports by others working in the fields of forensic pathology, toxicology, and psychiatry have been of immeasurable value.

It is clear that the establishment of institutes of legal medicine in association with medical teaching centers, and in urban areas with teaching hospitals, under the direction of competent, trained personnel would be an outstanding contribution to society. The result would be a more thorough and intelligent investigation of crimes and deaths due to violence and other undue means. It would mean better safeguarding of the rights of the accused individual. From the educational standpoint, such institutes would become centers for the training of physicians and for postgraduate study for specialists in legal medicine where lawyers and ancillary groups in crime detection and deception would assist one another in the prosecution of public safety and criminal justice

MEDICINE AND LAW

The Bible relates an interesting story about two brothers, Cain and Abel. It appears that Cain for various reasons decided to kill his brother Abel. He planned the killing of his brother so that it would appear as an accident. He succeeded in his plans but was apprehended and punished. Here is an example of murder that was the culmination of envy, jealousy, and revenge, an interlocking of psychoanalytic intrigues with a personal justification for the destruction of a man. There are numerous examples of homicide, justifiable or otherwise, in pre-Biblical and post-Biblical times. But it required one of the commandments, "Thou shalt not kill," to direct attention to the injustice of homicide in order to stabilize man in his communal environment and to make justice prevail. In the centuries that followed the legalistic thinking of reason against passion in the various patterns of our socioeconomic existence, the formula of reason invariably followed passion. If justice or righteousness is the ultimate end of law, a concept that was recorded in the book of Leviticus and was developed by Greek writings and influence, it reached its zenith when Thomas Aquinas considered it a basic principle in theology. It permeated the philosophical systems of "natural law" and was independent of time and place; it was always the same everywhere. This concept provoked a feeling of passive admission adhering to an admissible standard of natural laws. But to appreciate the significance of justice there must be aroused in people the sense of injustice, a positive and active realization of a condition and not a fanciful hypothesis. Many examples can be cited to illustrate this idea, but the commandment "Thou shalt not kill" not only indicated the processes of justice in the event of homicide or murder but the tribulations of injustice. Professor Cahn [5] summarizes this succinctly: "Justice means the *active processes* of remedying or preventing what would arouse the sense of injustice."

We, as citizens and as physicians, owe to society an acceptance of this concept. In the complex and turbulent society we live in, and the whirlpool of our age of technocracy and our socioeconomic structure, various injuries affecting the mind and body may result. If experience means anything, we must take cognizance of experience when we are told that each year in the United States there occur approximately 100,000 deaths due to violence of one kind or another and an equal or greater number of deaths take place unexpectedly from obscure causes and are, therefore, potential cases of death by violence. Approximately 200,000 unexplained or violent deaths each year are due to accidents, suicides, and homicides. Moritz [2] interprets these reports by insisting that "society depends upon the physician of the country to acquire and interpret the medical evidence needed to separate the violent from the non-violent deaths in this group, to aid in distinguishing between homicide, suicide and misadventure, and to recognize previously unsuspected but potentially preventable hazards to public health. If these and other medicolegal responsibilities of the medical profession are ignored during undergraduate medical education, the young physician is encouraged to believe that such responsibilities are unimportant and he has no obligation to discharge them."

In a discussion on "The Sanctity of Law: A Critique," Professor Cohen [6] says, "If we wish to deal with the economic problem realistically, we must get rid of fixed *a priori* views. These views come down from a relatively stable society. In such a society certain customs become established and hallowed by use and wont. But they are no longer applicable to a heterogeneous and rapidly changing order. We cannot live by established custom when things are changing or when the ideas of justice of one group conflict with the ideas of justice of another group. We need a better technique for finding ways of adjustment."

If we are to give assistance in matters pertaining to public safety and criminal justice, our obligations to our patients and society can only be fulfilled through the medium of education, by teaching legal medicine to our undergraduate students and to physicians at the graduate and postgraduate levels. Society will be the beneficiary, for we will have contributed the tools necessary to aid the law of the land. Justice will have the honest support of physicians and scientists in the active processes of remedying or preventing what would arouse the sense of injustice.

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[5] Cahn, E. N.: The Sense of Injustice: An Anthropocentric View of Law, New York, New York University Press, 1949.

[6] Cohen, M. R.: Reason and Law: Studies in Juristic Philosophy, Chicago, the Free Press, 1950, p. 139.

EXTRAOLFACTORY COMPONENTS OF FLAVOR

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Originally stimulated by interviewing an anosmic patient who stated she could still perceive flavors, we turned to the literature on the subject of flavor and found that uncertainty continues to exist as to the importance of olfactory and extraolfactory sensations in this regard. Because of the availability of five patients whose olfactory nerves had been surgically proved to be destroyed, either by basofrontal brain tumors or by cranial trauma, the opportunity presented itself for more definitive study.

METHOD

The five patients (one the subject of a published case report [1]) mentioned in the preceding paragraph were studied, together with a group of 10 normal controls. The patients without the sense of smell were of both sexes and of varying ages and occupations and had been anosmic for varying periods. The controls fell into similar categories. Smokers and nonsmokers were present in both groups. One control had complete dentures. All subjects were free of nasopharyngeal and sinus disease. In each instance the sense of taste and the somatic sensibilities of the mouth were intact. All of the controls gave normal olfactory responses as well. The anosmics, of course, could not perceive odors. Because we could not find a test of flavor directly applicable to the situation, we devised our own. The details of this test are reported elsewhere.[2] Briefly, however, it consisted of 31

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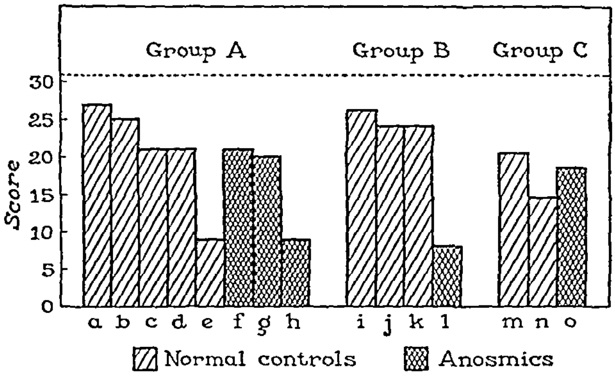
[1] Clark, E. C., and Dodge, H. W., Jr.: The Effect of Anosmia on the Appreciation of Flavor: Report of a Case, Neurology 5: 671-674 (Sept.) 1955.

items. These were vegetables and fruits given to the subjects in different consistencies at room temperature. The test for each subject was similar in detail in every instance and was given in two separate parts on successive days or weeks so as to prevent fatigue. All solid foods were cubed so as to prevent easy identification of the substance by its shape. The subjects were blindfolded during the procedure. Their mouths were rinsed with water, and several minutes were allowed to elapse between the giving of one test food and the next. As each food was given, the subject was requested to identify it. If he could do this he was asked whether he could perceive the flavor.

RESULTS

Normal Controls.—Analysis of the responses to testing of the normal controls revealed considerable variation in the accuracy of their answers. Although women tended to do better than men, experience with cooking was not a prerequisite for superior performance. As might have been expected, these subjects did best when presented with standard dietary items in their common vehicles and in their usual consistency. The one normal control with complete dentures did poorly with the test foods (see figure, column e). Possibly his dentures affected his perception of flavor. Some of the normal controls tended to pay more attention to oral sensations than did others. It must be reiterated that all of these patients were blindfolded and were deprived, therefore, of visual recognition of the food.



Comparison of the flavor-test scores of 5 anosmic patients and 10 normal controls. Thirty-one items were used in the test; a perfect score, therefore, would have been 31. Group A includes seven housewives, three of whom were anosmic and four, normal. All had had considerable experience in cooking. The fifth control (column e) was a middle-aged man with no particular culinary experience. Group B includes four young business women who cooked occasionally. One was anosmic, and three were normal. Group C includes three men, aged 20 to 24 years. One was anosmic, and two were normal. None had experience in cooking.

Anosmic Patients.—The scores made by anosmic patients also varied considerably. While two of the anosmic housewives (columns f and g) received the highest scores of the group, experience in cooking was not necessarily related to the best performance. As might have been expected, the more expert anosmic women did better than the one young man (column o) who had lost his sense of smell. As with the normal controls, anosmic patients were more accurate when presented with foods commonly eaten in their standard vehicle and in their usual consistency than when foods were in anywise unfamiliar. Of the anosmic patients who could recall having been able to detect odors, one (column h) believed that she had been largely deprived of her ability to discern flavors. Another woman who had lost her sense of smell at the time of operation (column g) stated that she had noticed no difference in the flavor of foods before and after complete destruction of her olfactory nerves. Two other such patients (columns f and o) observed that they had lost their ability to discern a few relatively unimportant flavors along with their loss of the sense of smell. One anosmic bookkeeper (column l) could not recall ever having recognized odors. When questioned she stated that she could perceive flavors well; nevertheless, when tested she did poorly. However, she often mentioned the color and appearance of the food that she thought she had been given in the test, and she seemed to be hampered more by the blindfolding than were some of the other anosmic as well as the normal patients.

Comparison of Normal Controls and Anosmic Patients.—To clarify relative abilities we assembled the normal controls and the anosmic patients in three separate groups, as is shown in the figure. The composition of these groups is given in the accompanying legend. No anosmic patient did as well as the best normal controls in identifying test foods; however, some of the subjects without the sense of smell did as well as some of the normal controls and better than the poorest control (column e). As was expected, some of the anosmic patients did very poorly (columns h and l).

On most occasions, when the test food was correctly identified either by an anosmic or by a normal control, the subject declared that he could perceive the flavor. In a few instances, however, members of both groups identified a food by physical characteristics but stated that they could not perceive the flavor. Conversely, on occasion members of both groups would misidentify some food and state that they could discern the flavor. For example, one normal person identified a pear as a peach and stated that she could perceive the flavor of peach.

COMMENT

Contrary to what might have been expected from a review of the literature,[3] the ability of certain of the totally anosmic patients to perceive flavor was not seriously impaired by their loss of the sense of smell. The fact that these subjects were able to score as well as, or better than, some normal controls in the tests of flavor suggests that olfaction had not been of paramount importance in their ability to discern the flavor of foods prior to their losing the sense of smell. This does not imply, however, that olfaction is always of secondary importance in the perception of flavor. As was demonstrated by the low test scores of the remaining anosmic patients, loss of olfaction (and perhaps of vision) appears to have been of primary importance in their failure to perceive most flavors. In view of this, it seems that flavor must be a composite of many sensations. Consequently, separating flavor into its various components is difficult. In fact, with the data at hand, we can only speculate as to the make-up of this sensory complex.

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2. Dodge, H. W., Jr., and Clark, E. C.: A Test for Flavor with Report of a Case of Congenital Anosmia, Proc. Staff Meet. Mayo Clin., to be published.

3. (*a*) Clark, E. C., and Dodge, H. W., Jr.: The Appreciation of Flavors, Postgrad. Med. 17:142-144 (Feb.) 1955. (*b*) Crocker, E. C.: Flavor, New York, McGraw-Hill Book Company, Inc., 1945.

The many odors that man can distinguish undoubtedly add materially to the enjoyment of foods. The ability to perceive sweet, salty, sour, and bitter sensations in the mouth is one of the most fundamental building blocks of this sensory composite. The widespread location of the taste buds on the tongue, palate, and nasopharynx gives man a maximal opportunity to sample each morsel of food before swallowing it. However, the act of perceiving flavors is not a simple mental combination of odor and taste. All of the somatic sensations experienced in the mouth, nasopharynx, and adjacent structures are important. For example, the temperature end-organs in the buccal cavity are our main source of information concerning the hotness or coldness of a substance at the time of eating. Most Western peoples are accustomed to a hot cup of coffee, and this coffee at room temperature is less palatable, both because of its temperature and because of its lack of aroma.

Pain is another important oral sensation associated with flavor. It prevents admission of noxious substances to the alimentary tract and, paradoxically, adds to the enjoyment of food; for example, no connoisseur of Mexican food would be entirely satisfied with a "bland" hot tamale. The wetness or dryness of foods can alter the flavor considerably, both from the standpoint of the sensation produced in the mouth and from that of the chemical changes within the food produced by hydration or dehydration. Likewise, chemical changes produced in the food by saliva may play an important part in certain instances.

The end-organs of light touch and deep pressure are utilized by the mouth, alone, together, or in combination with other sensation. Although difficult to analyze, sensibilities that play important parts in the contribution of oral sensations to flavor are vibration and other sensibilities mediated by way of the teeth and bones of the jaws, proprioceptive impulses from the muscles of mastication and expression, two-point discrimination, and stereognosis. Such terms as texture and consistency represent qualities of foods that elicit composites of many of these oral sensations. A food that exemplifies both of these qualities, as pointed out by Crocker,[3b] is taffy. This "chewy" candy is pulled by machines (or by hand) to develop brittleness and fibrous texture, which stimulate more desirable sensations and improve flavor.

One cannot, however, limit flavor to olfaction, taste, and the somesthetic sensations of the oral cavity. Vision, hearing, and the psychological state of the person at the time of eating the food also are important. Vision, for example, plays a prominent part, though one difficult to evaluate, in the perception of flavor. The tests used in this study, on both the anosmic and the control groups, necessarily excluded vision. Hearing enters into the perception of flavor in many ways. Modern advertisers recognize this in their use of such terms as crunchy and crackling, words with strong auditory components. The psychological state of the person at the time of eating may affect his perception of flavor. This psychological component has many facets. Among these, at least in part, are those just mentioned: vision and hearing. Also involved are the memories of previous experiences with the flavor, the interest the person has in food, and the setting in which the food is being eaten.

Thus, extraolfactory sensations often play major roles in the perception of flavor. However, as already has been mentioned, this does not necessarily imply that olfaction is not, at times, of primary importance in this regard. Rather, it suggests that olfaction may be one of the basic elements used in the final cerebral synthesis of flavor and that individuals may vary in their dependence on one sensation (smell, temperature, and taste for sweet, salt, or sour flavors, and so on) or another, in accordance with the sensory patterns learned previously.

One might well apply Mackay's simile [4] of the piano keyboard to these basic head sensations. Each normal individual has the full sensory keyboard at his disposal during maturation. As each person develops his sensory patterns, he may learn to use one or another, or a combination, of the various head sensations as the fundamental tone and to employ the remaining sensory modalities as the harmonics of the sensory chord. Should the fundamental tone be lacking and only the harmonics remain, the chord may become a meaningless grouping of tones and the perception of flavor may be lost. Thus the olfactory and extraolfactory sensations appear to play roles of varying importance in the discernment of flavor. One or the other is the fundamental tone, and the remaining sensations serve secondarily as the harmonics. In addition, the possibility that some undiscovered receptive mechanism in the mouth and nasopharynx may enter into the perception of flavor cannot be excluded.

This concept that flavor is a synthesis of many different sensations, in which olfaction plays a role of varying importance, raises certain semantic questions. As the word "flavor," thought to be derived from the old French term *flaur, fleiur,* meaning smell, is defined in the Oxford Dictionary as "the element in the taste of a substance which depends on the co-operation of the sense of smell," this term no longer seems adequate. The less commonly used word "savor," derived from the old French *savur, savour,* meaning "taste," seems more appropriate, and we suggest its use in this sense.

SUMMARY

When proved anosmic and normal control patients were studied to determine their ability to perceive flavors, it was found, contrary to popular belief, that several of the anosmic subjects were able to discern flavor. As olfaction was excluded in these cases, it is apparent that the extraolfactory components must at times play the major roles in identification of the flavor of substances. These extraolfactory components are the somatic sensations experienced in the mouth, nasopharynx, and adjacent structures, as well as vision, hearing, memory, and the psychological state at the moment of eating. Speculation is warranted on the mechanism of the interplay between the olfactory and extraolfactory sensations in the final sensory synthesis of flavor and on the possibility that some undiscovered receptive mechanism in the mouth and nasopharynx may enter into perception of flavor. Finally, it is felt that the word "savor" is much less attended by the connotation "smell" than is the word "flavor," and would seem to be a more appropriate term in this regard.

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[4] Mackay, R. P.: Toward a Neurology of Behavior, Presidential Address, Tr. Am. Neurol A. 79: 1-8, 1954.

INTRA-ARTICULAR AND PARAVERTEBRAL INJECTION OF CORTISONE IN OSTEOARTHRITIS OF SPINE

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Osteoarthritis of the spine is a common ailment. While the disease is of metabolic origin, certain occupations predispose to its development. For clarity, osteoarthritis is best described in three divisions, that is, as it affects the (1) cervical vertebrae, (2) thoracic vertebrae, and (3) the lumbar vertebrae and sacroiliac and lumbosacral joints. More than one of these locations is likely to be involved.

Osteoarthritis of the cervical vertebrae is prevalent among individuals whose occupations necessitate that the head be held in one position for long periods. The telephone operator, the traffic officer, and the physician or attorney who reads a great deal are probable subjects. Early in the disease there may be only a cracking sensation in the neck. Pain may not occur at this stage, but, when it does, it is referred to the side of the neck and radiates to the shoulder and frequently down the arm. It varies in intensity from a dull ache to a lancinating pain. Sometimes pain occurs bilaterally.

The radiographic examination shows normal curvature, but exostoses are present. The lateral view readily demonstrates that they extend into the soft tissues anteriorly from the bodies of the vertebrae at the junction of the cartilage of the intervertebral disk. The anteroposterior view shows spurring in the intra-articular facets. These findings, however, are not a criterion of the actual pathological process involved, because a large area of inflammation must be present for some time before the reaction to it can result in formation of new bone.

Osteoarthritis of the thoracic vertebrae is prone to occur among individuals who pursue laborious occupations. The housewife who raises a large family and whose duties necessitate the scrubbing of floors, the weekly washing of clothes, and numerous menial household chores; the stevedore; the grocery clerk who lifts heavy loads; and the obese individual present this picture. It is a disease of the middle-aged and elderly. The usual complaint is of pain over the precordium or in the upper or middle back. Deep breathing, coughing, sneezing, bending, or exercising will precipitate pain. Tenderness over the spine is apparent upon thumping above the involved areas. This is the time-honored intercostal neuralgia. Osteoarthritis of the thoracic vertebrae is readily recognized upon radiographic examination.

The pathological changes are usually confined to the intervertebral disk and the bodies of the vertebrae. Because of continued stress at the anterior, anterolateral, and lateral margins of the cartilage and bone, a low-grade inflammation commences. As the cartilage is avascular and bone is well supplied with blood, the metabolic process results in a paucity of cartilagenous cells and an osseous outgrowth (lipping). Usually spicules of bone form on the proximal and distal margins of the bodies of the vertebrae. Eventually the spicules meet, and because of contiguity ankylosis results. Here, too, it must be borne in mind that, while radiographic examination may reveal extensive osteoarthritis, a larger area than that exposed must have been involved for the extensive inflammation reaction to have occurred. The low-grade inflammatory also affects soft tissues, so that intercostal nerves are involved in the process as well as cartilage and bone.

Osteoarthritis of the lumbar spine, lumbosacral joint, and sacroiliac joints is the most common type. Except for the knee joints, osteoarthritis most frequently involves the lower spine. Excessive weight, faulty posture, and undue effort all affect these joints. Pathologically the process resembles that of osteoarthritis in other sections of the spine.

TREATMENT

Because of the severe pain associated with osteoarthritis of the spine and because there is so little in the therapeutic armamentarium for the relief of this condition, we undertook to study its treatment with intra-articular and paravertebral injections of cortisone. Our results have led to the suggestion of a method for obtaining symptomatic relief that can supplement older proved methods of treatment. There is no intent to detract from the time-honored means for the relief of stress and strain in osteoarthritis of the spine.

Both cortisone and hydrocortisone have been injected intra-articularly in rheumatoid arthritis and osteoarthritis.[1] While not uniformly effective, cortisone has in general produced the same effects as hydrocortisone but to a lesser degree and for a shorter length of time. In rheumatoid arthritis, there has been diminution in inflammation, pain, swelling, and stiffness, and diminution or disappearance of effusion. A decrease in the total white blood cell count in the joint fluid and improvement in the quality of mucin and in viscosity of synovial fluid have occurred as well as a reduction in the intra-articular temperature. Improvement in the range of motion in patients with osteoarthritis has been reported.[1c]

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Cortisone was furnished as Cortogen acetate injection for this study by Dr. George Babcock, Clinical Research Division, Schering Corporation, Bloomfield, N. J.

[1] (*a*) Duff, I. F.; Robinson, W. D., and Smith, E. M.: Evidence of Direct Action of Adrenocortical Steroids on Connective Tissue: The Effects of Systemic Administration of ACTH and Cortisone, and of Intra-Articular Cortisone and Compound F on the Joint Fluid in Rheumatoid Arthritis, J. Lab. & Clin. Med. **38**:805, 1951. (*b*) Hollander, J. L.; Brown, E. M., Jr.; Jessar, R. A., and Brown, C. Y.: Hydrocortisone and Cortisone Injected into Arthritic Joints: Comparative Effects of and Use of Hydrocortisone as a Local Antiarthritic Agent, J. A. M. A. **147**:1629 (Dec. 22) 1951. (*c*) Bilka, P. J.: Intra-Articular Use of Hydrocortisone in Rheumatic Diseases, Minnesota Med. **35**:938, 1952. (*d*) Ziff, M.; Scull, E., and Bunim, J. J.: Effects of Intra-Articular Cortisone and Hydrocortisone in Rheumatoid Arthritis, Fed. Proc. **11**:405, 1952. (*e*) Kersley, G. D.: Intra-Articular Use of Steroids in Arthritis, read before the 8th International Congress of Rheumatic Diseases, Geneva, Switzerland, August, 1953.

In rheumatoid arthritis, the injection of hydrocortisone has resulted in marked prompt local alleviation of symptoms and signs: decreased joint swelling and pain, improved motion, and reduced joint temperature.[2] It has produced prompt and better-sustained decrease in cell count of synovial fluid and a greater and more sustained increase in viscosity as compared with cortisone. In osteoarthritis,[3] the injection of hydrocortisone into the affected joints has promptly relieved signs and symptoms. Greater relief has been obtained and for longer periods than in rheumatoid arthritis. The beneficial effects seem to indicate that hydrocortisone has anti-inflammatory as well as antirheumatic action. Relief has lasted from a few days to several weeks. Successive injections have been as effective as the first.

Many joints have been injected with cortisone or hydrocortisone, primarily the knee, the hip, the elbow, the wrist, and the ankle. Since there has been a warning against intervertebral injection, few reports on intra-articular injection in the spine have appeared, but the procedure has been accomplished successfully.[4] The procedure we have developed in extending our experience [4a] on injection into and around the spine varies with the section of the spinal column under treatment. Thus a paravertebral injection is made around the cervical vertebrae while an intra-articular injection is made in the sacroiliac joints.

PARAVERTEBRAL INJECTION OF CERVICAL VERTEBRAE

Paravertebral injection of cervical vertebrae is relatively simple. First, consideration must be given to the sensory distribution from the cervical and the brachial plexus. When occipital headache due to cervical arthritis is present, involvement of one or more of the three upper cervical vertebrae is likely. If pain radiates from the neck to the shoulder or down one or both arms, then the brachial plexus is concerned and cervical vertebrae below the third will be involved. The usual site lies between the fourth and the sixth cervical vertebrae.

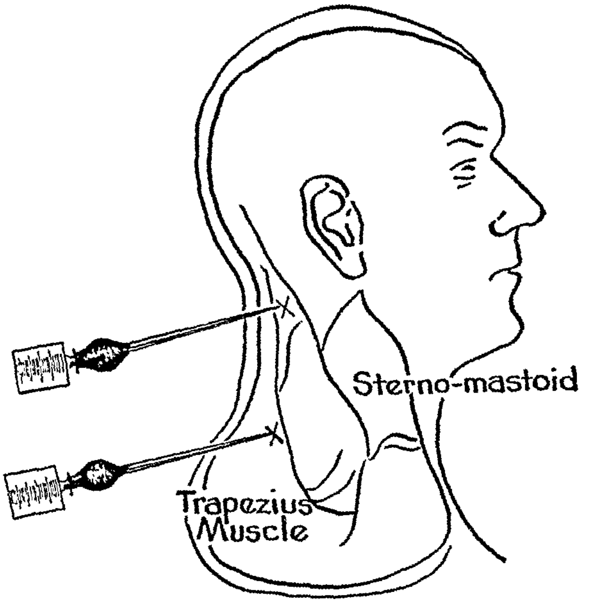

Fig. 1.—External site of paravertebral injection.

The technique of paravertebral injection is as follows. The skin is sterilized in the usual manner. If desired, 1% procaine hydrochloride may be used for local anesthesia, but we prefer to inject cortisone or hydrocortisone without the aid of a local anesthetic in order to avoid confusion in the interpretation of results. Irritation to either drug is sometimes encountered. To insure against this, an equal volume of 1% procaine hydrochloride may be injected simultaneously in the same syringe. One cubic centimeter (25 mg.) of cortisone or hydrocortisone in aqueous suspension is drawn into a syringe fitted with a long, 21-gauge needle. The needle is inserted laterally at the level of the involved area. It is then advanced medially and anteriorly at a 45 degree angle until the transverse process is encountered (fig. 1 and 2)

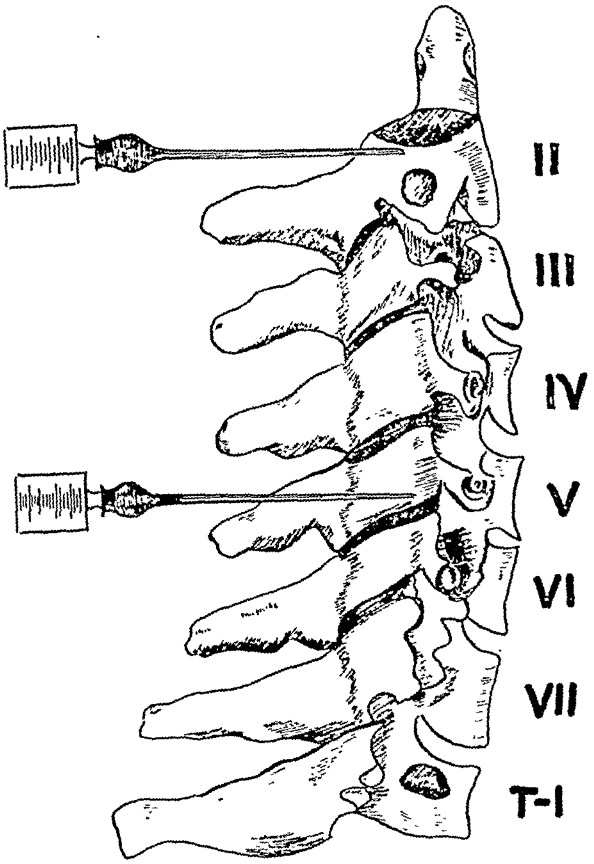

Fig. 2.—Internal site of paravertebral injection.

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4. (*a*) Cohen, A.; Rose, I., and Seven, M. J.: Intra-Articular Injection of Cortisone in the Treatment of Rheumatoid and Hypertrophic Arthritis, New England J. Med. **250**: 507, 1954. (*b*) Footnote 3*a*.

and then directed toward the midline. When resistance is again encountered, the cortisone or hydrocortisone suspension is infiltrated into the area. If blood is drawn into the syringe before the injection is completed, the needle should be withdrawn and the process repeated in order to avoid the injection of cortisone into a blood vessel. This is considered a paravertebral injection. True intra-articular injection cannot be accomplished because of the nature of the spinal articulations. A similar but more posterior approach may be used in the injection of thoracic and lumbar vertebrae. We have had little success in injecting the lumbosacral joints.

INTRA-ARTICULAR INJECTION OF SACROILIAC JOINTS

Injection of the sacroiliac joints is not a difficult procedure. A long, 21-gauge needle is inserted directly into the upper area of the joint and 12.5 mg. of cortisone or hydrocortisone in aqueous suspension injected. The needle is then withdrawn from the joint, but not from the subcutaneous tissue, and another 12.5 mg. of cortisone or hydrocortisone injected into the lower end of the joint.

Response to Intra-Articular Injection of Cortisone or Hydrocortisone

Joint Affected	No. of Patients		Duration of Disease	Interval Between Injections	Total No. of Injections	Result				
	M	F				Improved *			Not Improved	Worse
						Grade 1	Grade 2	Grade 3		
Cervical vertebrae										
Cortisone	13	9	2 to 6 wk.—6 3 mo. to 1 yr.—12 3 to 5 yr.—4	1 to 2 wk.	2 to 5—12 8 to 14—8 17 to 21—2	6	6	6	4	..
Hydrocortisone	1	3	3 wk. to 3 mo.—3 1½ yr.—1	1 to 2 wk.	3 to 4	1	1	2	..	..
Sacroiliac †										
Cortisone	5	7	2 to 5 wk.—3 3 to 6 mo.—2 1½ to 5 yr.—4 6 to 15 yr.—3	1 to 2 wk.—8 1 mo.—3 1 injection—1	1 to 3—6 7 to 9—2 12 to 17—4	1	3	7	..	1
Hydrocortisone	1	1	3 days—1 4 yr.—1	Daily—1 1 wk.—1	2	..	..	1	1	..
Thoracic vertebrae										
Cortisone	1	..	3 yr.	1 wk.	14	..	1	..	..	..
Hydrocortisone	..	2	4 yr.—1 15 yr.—1	1 wk.	18-1 23-1	2	..	..	..	..
Lumbar vertebrae										
Cortisone	..	2	6 mo.—1 1½ yr.—1	1-2 wk.	11-1 12-1	1	1	..	..	..
Hydrocortisone	..	1	15 yr.	1 wk.	23	1	..	..	..	..
Summary										
Cortisone	19	18	....	....	....	8	11	13	4	1
Hydrocortisone	2	7	....	....	....	4	1	3	1	..
Totals	21	25	....	....	....	12	12	16	5	1

* Grade 1 = slight relief; grade 2 = moderate relief; and grade 3 = marked relief.
† One patient had osteoarthritis of both sacroiliac joints.

INVESTIGATION

Forty-five patients with osteoarthritis were treated by injection of cortisone or hydrocortisone into or around joints in the spine. The disease affected several sections of the spine, as follows: cervical vertebrae 26 patients, right or left sacroiliac joint 13 patients, right and left sacroiliac joint one patient, thoracic vertebrae 2 patients, lumbar vertebrae 2 patients, and thoracic and lumbar vertebrae one patient. Thus osteoarthritis in 46 locations was treated. The sex distribution among the 45 patients was approximately equal in the groups with each kind of involvement, except that the 3 patients with osteoarthritis of the lumbar spine were women.

Cortisone was injected in 37 instances and hydrocortisone in 9. The portion of the spine affected and the numbers of patients with each type of involvement treated with these substances is shown in the table. The interval between injections of cortisone or hydrocortisone usually was one or two weeks. It was one month in three patients with osteoarthritis of the sacroiliac joint. One patient with similar involvement received only one injection of cortisone and another patient injections of hydrocortisone for only two days. In general, if no benefit occurred after four injections, there was little likelihood of benefit from further injections. When patients improved with treatment, the response was subjective and consisted of varying degrees of relief of pain. The patients' responses were graded as: grade 3, marked relief; grade 2, moderate relief; and grade 1, slight relief. Paravertebral injections as described above were given in each patient with osteoarthritis of the cervical vertebrae. Twenty-two patients in this group received cortisone, and 4 received hydrocortisone. Among the cortisone-treated patients the disease had been present for two to six weeks in 6 patients, for three months to one year in 12, and for three to five years in 4 patients. It had been present between three weeks and three months in three patients treated with hydrocortisone and for one and a half years in the fourth patient in this group. Twelve patients received 2 to 5 injections of cortisone, 8 patients received between 8 and 14 injections, and one patient received 17 and another 21 injections. Hydrocortisone was injected three or four times in the four patients receiving it.

Eighteen, or four-fifths, of the patients treated with cortisone were benefited. Six patients each noted marked, moderate, or slight relief of pain. Four failed to improve. The duration of the disease had little effect on the predictability of the response. Pain disappeared from two of the four patients receiving hydrocortisone, was relieved to a moderate degree in one, and was slightly relieved in another. The groups of patients showing some response are small, but the effect of hydrocortisone did not appear to be superior to that with cortisone.

The pain in the sacroiliac joint of seven patients disappeared during treatment by intra-articular injection of cortisone and was partially relieved in four more. The condition grew worse in one patient who had had osteoarthritis of the sacroiliac joint for "many years." The disease in about half of this group of 12 patients had existed from two weeks to six months and from 1.5 to 15 years in the remainder of patients. Pain of three days' duration in the sacroiliac joint of one patient disappeared when hydrocortisone was injected on two successive days. The disease had been present for four years in the second patient so treated. Two injections of hydrocortisone were given at a one-week interval with no improvement becoming apparent.

With paravertebral injection but a slightly more posterior approach, thoracic vertebrae were injected in three patients, with cortisone in one patient and hydrocortisone in two. Moderate pain relief occurred in the cortisone-treated patient after 14 weekly injections. The disease had existed for 4 and 15 years, respectively, in the other two patients. Although 18 to 23 weekly injections of hydrocortisone were given, pain was only slightly relieved.

Osteoarthritis of the lumbar vertebrae also was only slightly or moderately improved by cortisone in two patients and by hydrocortisone in one long-standing case. Eleven and 12 injections of cortisone, respectively, were given at intervals of one or two weeks. Twenty-three injections of hydrocortisone only slightly relieved the pain around the lumbar vertebrae in the patient who also had the same number of injections around the thoracic vertebrae.

In the original report, injection of cortisone into or around the spine was given in 16 patients with osteoarthritis. Two patients with osteoarthritis of the sacroiliac joint and one with osteoarthritis of the lumbosacral joint improved. Six of seven patients with cervical vertebral disease and five of six with osteoarthritis of lumbar vertebrae improved.

Considering together all of the 62 patients in the two series with osteoarthritis of the spine receiving cortisone or hydrocortisone, 42 (67.7%) were markedly or moderately improved, 12 (19.4%) slightly benefited, 7 (11.3%) unchanged, and one (1.6%) became worse during intra-articular or paravertebral injection. The number of patients receiving hydrocortisone is too small for statistical comparison, but in general the effect with this substance was not superior to that with cortisone.

SUMMARY

Cortisone acetate or hydrocortisone acetate was injected paravertebrally around cervical, thoracic, and lumbar vertebrae and intra-articularly into the sacroiliac joints of 46 patients with osteoarthritis affecting one of these portions of the spine. The disease was of long standing in some of the patients in each group. Injections varied in number from 1 to 23 and were usually given at intervals of one to two weeks. Thirty-seven patients received cortisone acetate and nine hydrocortisone acetate. Subjective improvement consisting of relief of pain occurred in 40 patients. This was marked in 16, moderate in 12, and slight in 12. Five patients showed no change, and one grew worse during treatment. The effect of hydrocortisone did not appear to be superior to that of cortisone. If no benefit was apparent after four injections, it did not usually occur with further injections.

ADDENDUM

Subsequent to the submission of this report, we have studied prednisolone (Meticortelone) acetate injections of 25 mg. per cubic centimeter utilized as above. There were six patients with cervical osteoarthritis and four with dorsal osteoarthritis. The number of injections were cervical 48 and dorsal 22, with no untoward reactions. Intervals of injections were as above. Percentage of results were the same.

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DETERMINATION OF ARTERIAL BLOOD PRESSURE IN THE LOWER EXTREMITY

USE OF AN EIGHTEEN CENTIMETER SPHYGMOMANOMETER THIGH CUFF

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and
Col. Thomas W. Mattingly, (MC), U. S. Army

Determination of the arterial blood pressure in the lower extremity is an important part of the physical examination. This simple procedure is of particular value in the diagnosis of various conditions in which there is a significant disparity between the pressure in the arterial system of upper and lower extremities. Such conditions include (*a*) congenital coarctation of the aorta, (*b*) acquired occlusive diseases of the aorta and large arteries of the lower extremities, (*c*) extrinsic compression of the aorta, and (*d*) aortic aneurysms.

The presence of palpable pulses in the peripheral arteries of the lower extremity does not necessarily exclude the above conditions. Even an experienced clinician cannot detect minor but often significant differences in the volume of the pulses in the two extremities. Palpation of the pulses in the peripheral arteries of the lower extremities in individuals suspected of having coarctation of the aorta is an unreliable screening procedure to eliminate the existence of this lesion.[1] Accurate and prompt diagnosis of the above conditions is important, as the majority of them can be corrected by surgery or improved by appropriate medical management. On the

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The opinions and recommendations as given in this publication are those of the authors and do not necessarily reflect those of the Medical Service, Department of the Army.

Lieut. Col. Herschel E. Griffin, M. C., and Corp. Irwin Kluger, Army Medical Service Graduate School, Walter Reed Army Medical Center, Washington, D. C., made the statistical analysis of these data.

[1] Dacquisto, M. P., and Mattingly, T. W.: To be published.

other hand, the determination of the arterial blood pressure in the lower extremity is not of particular diagnostic value in a variety of other vascular and nonvascular conditions.[2]

The technical difficulties involved in applying the standard 12 cm. cuff to the adult thigh caused our attention to be directed to the use of a nonstandard cuff, 18 cm. in width, especially designed to fit the adult thigh. This cuff is of a tubular design, made of heavy cloth, has easily adjustable hook straps, and remains in place during inflation. In using this cuff the values obtained differed markedly from the accepted normal for the lower extremities. Several studies have been made with use of sphygmomanometers with cuffs 12 cm. and 15.5 cm. in width, as well as direct intra-arterial measurements. Our studies are in agreement with the accepted normal blood pressure values in the upper and lower extremities when the standard 12 cm. sphygmomanometer cuff is used. They also indicate factors that modify the normal readings. The weight of the patient and the circumference of the extremity are factors that cause diversity in the normal.[3] Some observers believe the circumference to be directly related to the body weight, and the weight may therefore be the most important factor.[4] It has previously been shown that cuff size will vary readings in the same individual.[5] The influence of such factors as exercise, posture, venous congestion, and emotional lability are well recognized [6] and are not pertinent to this presentation.

It is recognized that blood pressure as measured by the sphygmomanometer is not exact. Comparison with direct intra-arterial measurements show the brachial artery systolic pressure to be 3 to 4 mm. Hg too low and the brachial diastolic pressure to be 8 mm. Hg too high.[7] Van Bergen and others [8] have shown, more recently, that the indirect readings tend to fall increasingly below the direct measurements as the blood pressure rises.

Prior to 1924 there was thought to be no difference in the arterial blood pressure in the upper and lower extremities of normal persons. In that year Bazett [9] demonstrated, in dogs, a higher systolic pressure in the femoral than in the brachial artery. The following year Burdick,[10] using photomanometric devices, recorded pressures simultaneously in the brachial and femoral arteries in human beings. He found, in normal human beings, the femoral arterial blood pressure consistently higher than the brachial arterial blood pressure. These observations have been confirmed by subsequent investigators.[11] The average values found by these workers, using a 12 cm. cuff, in the upper extremity were between 115 to 118 mm. Hg systolic and 70 to 77 mm. Hg diastolic. Using the same cuff in the lower extremity values of 150 to 154 mm. Hg systolic and 91 to 104 mm. Hg diastolic were obtained. Kotte and others [5] confirmed these findings in the upper and lower extremity using a 12 cm. cuff, but using a 15.5 cm. cuff in the lower extremity they found an average reading of 133 mm. Hg systolic and 85 mm. Hg diastolic. Intra-arterial femoral blood pressure determinations done on the same subjects revealed a systolic pressure of 126 mm. Hg and a diastolic pressure of 63 mm. Hg, indicating that the wider cuff was more accurate in determining the true systolic blood pressure in the lower extremity. These investigations were made with the patients in either the supine or prone position and do not reflect the effects of gravity.

Not having an established normal value for the 18 cm. cuff for blood pressure determination in the lower extremity, we undertook a study to determine such values and to find if the relationship of the values for the upper and lower extremities is statistically significant.

METHOD

One hundred adult males who did not have demonstrable cardiovascular disease were selected for study. All pressure determinations were made and recorded by us. Blood pressure determinations were made in both upper extremities and the right lower extremity with the standard 12 cm. cuff and in the right lower extremity with the specially constructed 18 cm. cuff. These determinations were made with the subjects under near basal conditions, supine for readings in the upper extremity and prone for readings in the lower extremity. The systolic end-point was interpreted as being the onset of the vascular sound and the diastolic end-point as being the cessation of sound. This was done in accordance with the recommendations of the American Heart Association.[12] Additional data accumulated consisted of height, weight, and the circumference of the thigh taken at a point 20 cm. above the upper margin of the patella. The age of the patients was not considered significant, since all persons examined were between 18 and 30 years of age. The blood pressure determinations are tabulated in table 1. There was no significant difference in the readings obtained in the right and left upper extremity, and only the values obtained in right arm are given.

The data presented in table 1 were subjected to statistical analysis. As shown in table 2, there is a significant difference between the systolic and the diastolic readings in the lower extremity with use of the cuffs of different width. The 18 cm. cuff shows a significantly lower systolic and diastolic blood pressure reading than the 12 cm.

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cuff ($p<0.001$). The average pulse pressure in the lower extremities obtained with the 12 cm. cuff was 63.21 mm. Hg, and that obtained with the 18 cm. cuff was 54.14 mm. Hg. For the 100 adult males examined the pulse pressure was significantly greater in the 12 cm. cuff determinations.

As demonstrated by the figure, there is a relationship wherein a systolic blood pressure obtained with an 18 cm. thigh cuff could predict a systolic reading that might be obtained with a 12 cm. thigh cuff. The best fitting regression line is obtained by the least squares method and is: $y = x + 23.6$, where x is the systolic reading with the 18 cm. cuff and y is the systolic reading with the 12 cm. cuff. The data were subjected to the analysis of variance in order to see how well they fitted the curve. Table 3 summarizes the analysis of variance.[13] The F ratio clearly indicated that the chances are less than one in a thousand of obtaining an F value of this magnitude if there is no linear relationship between x and y. It should be expected that this relationship would be present, inasmuch as the same values were measured in each instance.[13] This relationship is real but not precise, i. e., a reading with use of one of the cuffs is not readily translatable into an expected reading with use of the other cuff.

TABLE 1.—*Tabulation of Blood Pressure Determinations in Upper and Lower Extremities in 100 Adult Males, Showing Distribution of Values*

Blood Pressure Ranges, Mm. Hg	Right Arm, 12 Cm. Cuff		Thigh, 12 Cm. Cuff		Thigh, 18 Cm. Cuff	
	Systolic	Diastolic	Systolic	Diastolic	Systolic	Diastolic
211-220	..	..	..	..	..	..
201-210	..	..	1	..	..	..
191-200	..	..	2	..	..	..
181-190	..	..	4	..	..	..
171-180	..	..	12	..	1	..
161-170	..	..	14	..	2	..
151-160	3	..	26	..	3	..
141-150	4	..	23	..	17	..
131-140	18	..	11	..	33	..
121-130	30	..	6	..	28	..
111-120	26	..	1	4	12	..
101-110	19	..	..	12	4	1
91-100	..	1	..	34	..	9
81- 90	..	17	..	40	..	29
71- 80	..	42	..	6	..	47
61- 70	..	29	..	4	..	12
51- 60	..	11	..	..	..	2
41- 50	..	..	..	..	..	..
Total	100	100	100	100	100	100

TABLE 2.—*Summary of Blood Pressures, Upper and Lower Extremities, in 100 Adult Male Subjects*

Size of Cuff	Blood Pressure	Mean Blood Pressure	Standard Error of Mean
12 cm. (arm)................	Systolic	124.20	1.25
	Diastolic	74.25	0.87
12 cm. (thigh)...............	Systolic	157.36	1.80
	Diastolic	94.15	1.10
18 cm. (thigh)...............	Systolic	134.43	1.43
	Diastolic	80.29	0.95

There was no statistical relationship apparent between the thigh size and the blood pressure obtained with the 18 cm. cuff, nor was there a significant relationship between the diastolic readings, as obtained with the different cuffs, in the lower extremity.

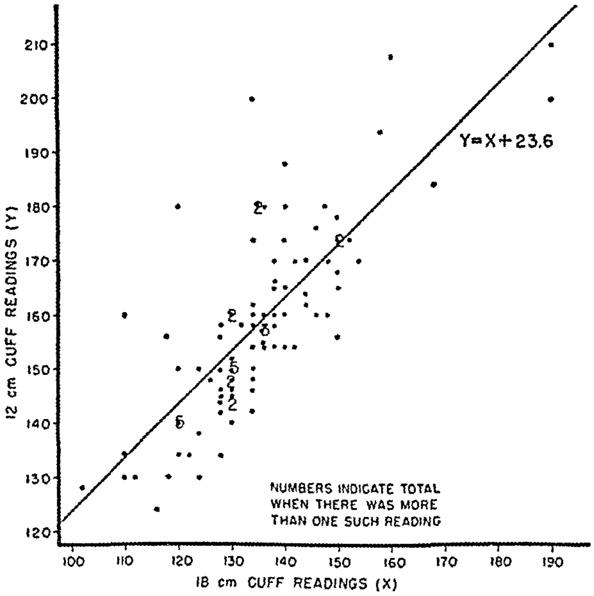
In all instances, in this small group of normal patients, the systolic blood pressure in the thigh, as determined with either the 12 or 18 cm. cuff, was found to be higher than the blood pressure in the arm, as determined with the 12 cm. cuff. As shown in table 1, the pressure in the thigh as determined with the 18 cm. cuff more closely approximates the arm pressure as determined with the standard 12 cm. cuff. It is our opinion that a systolic pressure in the thigh lower than the systolic pressure in the arm, with use of either the 12 cm. or 18 cm. cuff, is indicative of organic disease and makes further diagnostic study mandatory.

TABLE 3.—*Analysis of Variance to Test for Linearity Between Systolic Readings* *

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Sum of Squares	F †
Regression....................	1	18,709.51	18,709.51	137.7
Deviations from regression...	98	13,319.53	135.91	.....
Total......................	99	32,029.04		

* As obtained with the 12 cm. and 18 cm. sphygmomanometer cuffs (thigh).

† Ratio of the larger mean variance between samples to the smaller mean variance within samples.



Systolic blood pressure of 100 adult males obtained with 12 and 18 cm. cuffs (thigh).

SUMMARY AND CONCLUSIONS

A study was made of the arterial blood pressure values obtained in the thigh with a nonstandard 18 cm. sphygmomanometer cuff. It is apparent that there is a significant difference in pressures so obtained when compared to the pressures obtained with the standard 12 cm. arm cuff, the difference being especially significant in the level of the systolic pressure. It is important that the examining physician recognize this difference, and when different-sized cuffs are used they should be so defined in order that values may be properly interpreted and evaluated.

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13. Snedecor, G. W.: Statistical Methods Applied to Experiments in Agriculture and Biology, ed. 4, Ames, Iowa, Iowa State College Press, 1946, pp. 61, 127.

The values obtained with the 18 cm. cuff more closely approximate the intra-arterial reading in the femoral artery than do the values obtained from the use of the 12 cm. or 15.5 cm. cuff in the normal adult patient. This and the ease of application makes the larger cuff a more desirable diagnostic tool. It is recommended that the committee on standardization of blood pressure of the American Heart Association give consideration to a standard for procedure and normal values for the arterial blood pressure in the lower extremity.

CLINICAL NOTES

SUBACUTE BACTERIAL ENDOCARDITIS TREATED BY INTRAVENOUSLY GIVEN ERYTHROMYCIN

REPORT OF A CASE

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Joanne Lloyd-Jones, M.D.
and
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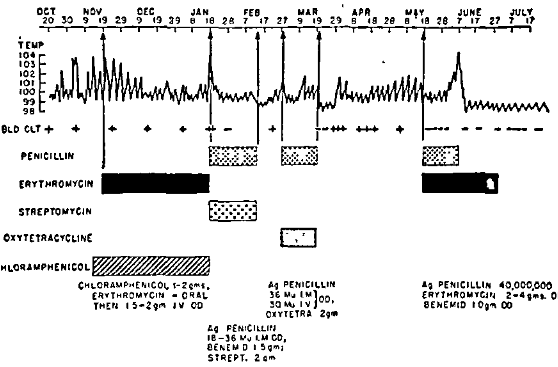
The present communication reports the apparent cure with intravenously given erythromycin of an antibiotic-resistant, nonhemolytic, streptococcic, bacterial endocarditis.

A 38-year-old woman was referred to our hospital on Jan. 18, 1954, with the diagnosis of an antibiotic-resistant "staphylococcic" endocarditis. The patient reported that she was a "blue baby" at birth and that she had always had a soft asymptomatic heart murmur. On Sept. 15, 1953, the patient underwent an uncomplicated dilation and curettage for menometrorrhagia of two months' duration. Because of the history of possible congenital heart disease, she was given prophylactic doses of penicillin, 1,000,000 units a day, for the six days of her hospitalization. On Oct. 15, the patient was readmitted to the same hospital with pain in her legs and a fever spiking to 104 F (40 C). A tentative diagnosis of pelvic thrombophlebitis was entertained, but pelvic examination was negative and positive blood cultures soon established the diagnosis of subacute bacterial endocarditis. The organism isolated was reported to be nonhemolytic "Staphylococcus," sensitive to chloramphenicol, bacitracin, and erythromycin but resistant to penicillin, dihydrostreptomycin, chlortetracycline, oxytetracycline, and polymixin. In the ensuing two and one-half months she was given therapeutic courses of chloramphenicol, bacitracin, sulfisoxazole (Gantrisin), and erythromycin. Chloramphenicol was given alone in amounts ranging from 250 to 500 mg. every six hours for a three week period and later in combination with the other two drugs. Bacitracin and erythromycin were given both orally and parenterally. Erythromycin was also given intravenously for a three week period, 1 gm. twice daily. During this time the blood cultures remained positive and the patient's temperature ranged from 100 to 101 F (37.7 to 38.3 C). In addition, her apical systolic murmur increased in intensity, and she experienced three episodes of pulmonary edema, for which she was digitalized. On Jan. 18, 1954, she was transferred to our hospital for further treatment.

Physical Examination.—On physical examination temperature was 100 F; pulse 100, regular; respirations 18; and blood pressure 105/60 mm. Hg. There were subsiding Osler's nodes and marked clubbing of the fingers but no icterus or petechiae. The heart was slightly enlarged to percussion, with the pulmonic second sound much accentuated, and there was a harsh precordial systolic murmur, loudest in the third intercostal space to the left of the sternum and transmitted to the left posterior part of the thorax. There was no evidence of heart failure, and the spleen was not palpable.

Laboratory Data.—The hemoglobin level was 13 gm. per 100 cc. and the leukocyte count 9,000 per cubic millimeter, with marked shift to the left. The urine was negative except for 3+ proteinuria, clearing rapidly after admission. Erythrocyte sedimentation rate was 48 mm. in one hour (Westergren), blood urea nitrogen 9 mg. per 100 cc., thymol turbidity 3+, and protein partition albumin 4.6 and globulin 3.3 gm. per 100 cc. The electrocardiogram was normal. A 2 m. chest film revealed clear lungs and a slightly enlarged heart, with accentuation of the outflow tract of the right ventricle on cardiac fluoroscopy. Cardiac catheterization ruled out patent ductus arteriosus but did not enable us to distinguish between rheumatic valvular disease and a ventricular septal defect. Blood cultures in our laboratory revealed the organism actually to be a nonhemolytic Streptococcus relatively insensitive to penicillin and streptomycin and sensitive to oxytetracycline and erythromycin.



Course of patient with subacute bacterial endocarditis.

Course.—Initial treatment was with aqueous penicillin, 3 million units every four hours intramuscularly; streptomycin, 0.5 gm. every six hours intramuscularly; and probenecid (Benemid), 0.5 gm. every eight hours orally (see figure). During this regimen blood levels of penicillin were 25 units per cubic centimeter two hours after and 12 units per cubic centimeter four hours after an injection of the antibiotic. In vitro sensitivity studies revealed that the organism was inhibited by 10 units per cubic centimeter of penicillin alone, 40 mcg. per cubic centimeter of streptomycin alone, or by a combination of 1 unit per cubic centimeter of penicillin and 5 mcg. per cubic centimeter of streptomycin. Because of this apparent resistance to penicillin, the dosage of that drug was doubled 10 days after therapy was begun and the course continued for another 15 days, with penicillin levels of 25 units per cubic centimeter four hours after the injection. During this 25 day period blood cultures were sterile and the patient afebrile, but 7 days after cessation of therapy blood cultures were once again positive. Now the organism was found to be inhibited in vitro by 20 units per cubic centimeter of penicillin alone, not inhibited by 100 mcg. per cubic centimeter of streptomycin alone, but inhibited by a combination of 4 units per cubic centimeter of penicillin in combination with 2 mcg. per cubic centimeter of oxytetracycline.

On Feb. 28, 1954, another course of antibiotic therapy was begun, with penicillin, 6 million units every four hours intramuscularly and 10 million units every eight hours intravenously (for only 66 million units per day); oxytetracycline, 0.5 gm. orally every six hours, and probenecid. After five days, an additional 250 mg. of oxytetracycline was given every eight hours in each infusion of penicillin. Blood levels of 40 units per cubic centimeter of penicillin and 8 to 10 mcg. per cubic centimeter of oxytetracycline were obtained. Once again blood cultures be-

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The erythromycin glucoheptonate used in this case was supplied as Ilotycin by Eli Lilly Co., Indianapolis.

came sterile, but the patient's spleen became palpable and she developed distressing gastrointestinal symptoms with weight loss. She also developed extensive multilocular gluteal abscesses that had to be drained surgically, so that, after 18 days' treatment, when further intramuscular injections were impossible and all veins for intravenous administration of penicillin had been used, this therapy was discontinued. One week later blood cultures were positive again. While healing of the gluteal abscesses was awaited, the patient was given the following medication orally: tetracycline, 1 gm. per day, and benzathine penicillin G (Bicillin), 10 million units per day, with probenecid; but the blood levels of penicillin were only 0.2 units per cubic centimeter, and the blood cultures remained positive. A combination of neomycin, bacitracin, and streptomycin, which was particularly effective in vitro, had to be discontinued after 36 hours because of a return of the albuminuria and extreme pain in the quadriceps injection site.

With a return of fever spiking to 102 F (38.8 C), the situation became increasingly desperate. A reevaluation of the organism's sensitivities indicated that 3 mcg. per cubic centimeter of erythromycin was inhibitory. It was hoped that high blood levels of this drug maintained by a constant infusion would be effective where oral and intermittent intravenous administration had failed previously. Consequently 2 gm., increased after one week to 4 gm., of erythromycin was given daily, intravenously, for six weeks. In addition, 40 million units of penicillin was given daily intravenously for the first 18 days, empirically. A polyethylene catheter inserted into the lower saphenous veins caused much local thrombophlebitis and temperature spikes despite the use of heparin in the infusions. Finally, although the catheter was threaded from the femoral triangle far into the iliac vein, it was not until intravenous administration of penicillin was discontinued that these complications ceased. For the last three and one-half weeks, 4 gm. of erythromycin (plus heparin) was administered daily without incident, and blood levels of 12 to 18 mcg. per cubic centimeter were maintained. During this course, as before, blood cultures became sterile, but this time there was no recurrence of bacteremia after treatment. At the time of writing, four months after treatment, blood cultures are reported to be sterile. The patient writes that she is at home, gradually gaining weight and strength, and has had no evidence of congestive heart failure on a regimen of digitoxin and limited activity. Her main complaint is dizziness and ataxia, which is essentially unchanged since discharge and probably is a result of streptomycin intoxication.

COMMENT

This case illustrates the value of laboratory determinations of bacterial sensitivities and blood levels of the drugs used as aids to adequate antibiotic treatment of subacute bacterial endocarditis caused by an antibiotic-resistant organism. It also shows the effectiveness and freedom from toxic effects of intravenous administration of a relatively new antibiotic that was previously considered to be only bacteriostatic, like the other broad-spectrum antibiotics. The importance of erythromycin alone in effecting the cure in this case is impossible to assess because of the concomitant administration of penicillin for the first 18 days of treatment. A synergistic effect was hoped for, and cannot be ruled out, although it is noteworthy that a larger daily dose of penicillin (66 million units) with oxytetracycline, a known in vitro synergistic combination, failed to cure. It is unfortunate that in vitro synergistic tests of penicillin and erythromycin in combination were not carried out against this organism, especially since synergism is postulated in erythromycin-streptomycin combination.[1] At the time of this work a report on the only long-term clinical experience with intravenously given erythromycin had not been published; in this experience 3.5 gm. was administered daily for two weeks to a 30 lb. (13.6 kg.) child with subacute bacterial endocarditis. This case has now been reported, along with other observations on the effectiveness of intravenously given erythromycin.[2]

SUMMARY

The cure of a case of subacute bacterial endocarditis caused by a nonhemolytic Streptococcus, resistant to large doses of antibiotics, was effected by the use of erythromycin, 4 gm. daily, in a continuous intravenous drip for six weeks. No toxic effects of this drug were noted. There was a possible synergistic effect from 40 million units of penicillin added daily to the erythromycin infusion for the first 18 days. An indwelling polyethylene catheter was effectively used for the long-term administration of a heparinized infusion of the antibiotic.

ADDENDUM

In May, 1955, 10 months after discharge from the hospital, follow-up showed sterile blood cultures and slight cardiac enlargement on x-ray. The patient was continuing to improve her exercise tolerance within narrow limits and still required digitalis and had some degree of ataxia.

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1. Geraci, J. E., and Martin, W. J.: Antibiotic Therapy of Bacterial Endocarditis: Therapeutic Considerations of Erythromycin, Proc. Staff Meet. Mayo Clin. **29**: 109 (Feb. 24) 1954.

2. Johnson, T. D., and Hurst, J. W.: Bacterial Endocarditis Due to a Penicillin-Resistant Staphylococcus: Report of a Case Successfully Treated with Erythromycin, Oxytetracycline and Streptomycin, New England J. Med. **251**:219 (Aug. 5) 1954. Geraci, J. E.; Martin, W. J.; Nichols, D. R., and Larson, L. W.: Intravenous Use of Erythromycin Glucoheptonate, Proc. Staff Meet. Mayo Clin. **29**:536 (Sept. 15) 1954.

HAZARD OF CORTICOTROPIN AND CORTISONE THERAPY IN PATIENTS WITH HYPERCHOLESTEREMIA

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Thromboembolic phenomena may represent a serious complication of the use of corticotropin and cortisone.[1] These complications were observed in five patients with hypercholesteremia, idiopathic or secondary to other disease, leading to the impression of a causal relationship between the preexisting elevated level of serum cholesterol and the thromboembolic phenomena.

REPORT OF CASES

CASE 1.—A 52-year-old female was hospitalized on Feb. 21, 1952, because of diarrhea and abdominal pain. For two years prior to admission, she had been subject to intermittent attacks of severe abdominal cramps and diarrhea. The stools were foul-

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This study was supported in part by a research grant from the National Institutes of Health, United States Public Health Service.

Dr. Hyman Katz, Veterans Administration Hospital, Brooklyn, N. Y., gave permission to use data presented in two of the cases.

[1] (*a*) Smith, R. W.; Margulis, R. R.; Brennan, M. J., and Monto, R. W.: The Influence of ACTH and Cortisone on Certain Factors of Blood Coagulation, Science **112**: 295, 1950. (*b*) Cosgriff, S. W.; Diefenbach, A. F., and Vogt, W., Jr.: Hypercoagulability of the Blood Associated with ACTH and Cortisone Therapy, Am. J. Med. **9**: 752, 1950. (*c*) Cosgriff, S. W.: Thromboembolic Complications Associated with ACTH and Cortisone Therapy, J. A. M. A. **147**: 924 (Nov. 3) 1951.

smelling and foamy. She complained frequently of bloating and postprandial discomfort. Study in 1950 revealed a normal gastrointestinal x-ray series and barium enema. Repeated stool analyses showed many fat globules, no ova or parasites, and a negative guaiac reaction. The hemoglobin level was 11.4 gm. per 100 cc. The white and differential blood cell counts were normal. On therapy consisting of a sprue diet supplemented with folic acid, she showed gradual improvement. Three days prior to admission, however, she again began to have severe abdominal pains, with as many as 20 diarrheal movements daily. Hospitalization was necessary because of marked dehydration.

Physical examination revealed an acutely ill female. There was marked dehydration of skin and mucous membranes. Blood pressure was 115/72 mm. Hg; pulse, 88 per minute; respiration, 20 per minute; and temperature, 98.6 F (37 C). The abdomen was somewhat distended and diffusely tender. Physical examination was otherwise negative. Urinalysis was normal. Hemoglobin level was 12.6 gm. per 100 cc.; white blood cell count was 8,750 per cubic millimeter, with segmented cells 53%, nonsegmented 10%, lymphocytes 33%, monocytes 4%, and reticulocytes 0.4%. Sedimentation rate was 60 mm. per hour (Westergren). Stool examinations revealed a few fat globules, no ova or parasites, and a negative guaiac reaction. Serum cholesterol level was 314 mg. per 100 cc. The oral glucose tolerance test (100 gm. glucose) was flat. A gastrointestinal x-ray series revealed a mild deficiency pattern.

Serum Lipid Levels of Three Patients and Their Close Blood Relatives

	Level, Mg. per 100 Cc.		
	Cholesterol/ Esters	Phospholipids	Total Lipids
Patient in case 1	314/245	305	1030
Sister, aged 63	289/212	311	....
Sister, aged 48	281/204	325	....
Patient in case 2	298/...	335	960
Mother, aged 78	308/224	316	1200
Brother, aged 52	298/227	275	1550
Brother, aged 50	212/160	225	670
Brother, aged 48	288/232	275	1050
Sister, aged 41	257/226	336	810
Patient in case 3	382/284	398	1230
Sister, aged 40	167/124	200	555
Sister, aged 37	319/228	290	900

For the first two days, treatment consisted of intravenous infusions supplemented with vitamins. Temperature was slightly elevated for the first four days. In view of the tentative diagnosis of sprue and because of the persistence of abdominal pain and diarrhea, therapy with corticotropin (ACTH) gel by intramuscular injection was instituted. The following doses were given: March 15, 20 mg.; March 16, 80 mg.; and March 17, 80 mg.—a total of 180 mg. On this therapy, the abdominal pain disappeared, the bowel movements diminished to two daily, and the patient became euphoric. On the morning of March 18, she was awakened by crushing anterior chest pain. She was acutely ill, orthopneic, and cyanotic. Blood pressure was 146/85 mm. Hg and pulse rate was 110 per minute. The heart sounds were of good quality. The electrocardiogram revealed S-T and T-wave changes suggesting coronary insufficiency. Corticotropin therapy was discontinued. On the following day, the condition remained critical. She suffered another attack of crushing precordial pain accompanied by profuse diaphoresis. The blood pressure was 150/90 mm. Hg; the pulse, 132 per minute; and temperature, 101 F (38.3 C). The electrocardiogram revealed depression of S-T in lead 2 and inversion of T wave in lead 3. The clinical impression was that of an acute myocardial infarction. Treatment with bishydroxycoumarin and digitalis was instituted. Meperidine (Demerol) was required repeatedly for chest pain. On the third day a loud precordial friction rub was heard. Sedimentation rate rose from 33 to 65 mm. per hour. On March 22, the electrocardiogram showed further S-T depression and T wave inversion. Her condition gradually improved. On April 9, the electrocardiogram was normal. Since discontinuation of corticotropin therapy, she has had no further diarrhea and only minimal abdominal discomfort. Because of the elevated levels of her serum cholesterol (314 mg. per 100 cc.), the patient's siblings who were clinically well were studied. The data are summarized in the table.

Case 2.—A 38-year-old male was hospitalized in May, 1953, because of pain and swelling of the ankles and hands of five weeks' duration. The patient gave a history of two or three attacks of joint pain and swelling yearly since 1943. Therapy (salicylates) in previous attacks gave only partial relief. For the present attack, he took cortisone irregularly in doses of 100 to 150 mg. daily for several days without relief. Physical examination revealed a well-developed obese male. Tenderness was present over the internal and external malleoli bilaterally and over the phalangeal heads on the undersurface of the toes of both feet. He was unable to flex the third and fourth fingers of the right hand, and there was redness and swelling of the interphalangeal joints. The physical examination was otherwise within normal limits. The blood cell count revealed 10,400 white blood cells per cubic millimeter with a normal differential count; hemoglobin level, 15.3 gm. per 100 cc.; sedimentation rate, 5 mm. per hour; hematocrit value, 52%. Urinalysis was normal. Serum uric acid level was 3.5 mg. per 100 cc. Antistreptolysin titer was less than 100 units. Roentgenograms of the involved joints showed no abnormalities.

For four days after admission, the patient received salicylates with no improvement. Ten days after admission, therapy with cortisone, given orally in doses of 200 mg. daily, was instituted. After 13 days, the patient felt so well that he was permitted to leave the hospital on a pass. On the same afternoon, while changing an automobile tire, he developed sudden severe pain in his right lower chest. The pain was aggravated by deep breathing and coughing and was accompanied by diaphoresis and severe headache. Despite bed rest, cough and chest pain increased in severity and the patient returned to the hospital. At this time he was complaining of excruciating precordial pain radiating down the right arm and of severe coughing.

Physical examination revealed a desperately ill male. Temperature was 104 F (40 C) and pulse rate, 120 per minute. The patient was extremely apprehensive, covered with perspiration, and was in marked distress from the chest pain. There was dulness at the right lung base, with decrease in breath sounds and tactile fremitus in this area. There was no evidence of peripheral venous thrombosis. The electrocardiogram revealed a deepening of S in leads 1 and AVL, with lowering of T waves in leads 1, V_5, and V_6. Roentgenogram of the chest revealed an infiltration at the right base compatible with pulmonary infarction. Shortly thereafter he began to expectorate blood-tinged sputum. A pleural friction rub was heard at the right base. Anticoagulant therapy was instituted with heparin and bishydroxycoumarin. At this time clotting and prothrombin values were normal. For the next five days, the patient's condition remained critical, with persistence of cyanosis, tachypnea, hemoptysis, fever, and leukocytosis. Roentgenologic changes and clinical signs consistent with small infarctions in the opposite lung field appeared during this period. The patient's condition improved slowly. The fever persisted for 10 days and the chest signs for 20 days. At this point anticoagulant therapy was discontinued and the patient was discharged. In view of the observations made concerning familial hypercholesteremia in case 1, serum cholesterol studies were performed in the patient. The level was 298 mg. per 100 cc. The results obtained in his immediate family are summarized in the table.

Case 3.—A 40-year-old male was hospitalized because of sudden onset of severe anterior chest pain. He had suffered a myocardial infarction at the age of 36. At this time xanthoma tendinosum over the metacarpophalangeal joints of both hands and of the Achilles tendons was noted. His father died of myocardial infarction at the age of 52. Four days prior to the current admission he took hydrocortisone, in doses of 20 mg. several times daily, for gouty arthritis. He had taken a total of 220 mg. of the drug when he was seized with sudden precordial chest pain radiating to the back and neck. The pain was aggravated by respiration and was accompanied by a temperature of 102 F (38.9 C). Two days later, x-ray examination revealed blunting of the left phrenicocostal sinus. The electrocardiogram showed changes consistent with the diagnosis of an old myocardial infarction. The clinical impression was that the patient had suffered a pulmonary embolus. Recovery was uneventful. Serum cholesterol level when first observed was 440 mg. per 100 cc., falling to 322 mg. per 100 cc. on a low-fat, low-cholesterol diet. Serum uric acid level was 7 mg. per 100 cc. The serum cholesterol levels of the patient's siblings are presented in the table.

CASE 4.—A 47-year-old female with known duodenal ulcer and rheumatoid arthritis was hospitalized because of melena. For the past eight years she had been suffering from severe rheumatoid arthritis involving multiple joints of the extremities. Because of progressive disability and failure to respond to other forms of antirheumatic therapy, a course of cortisone therapy was thought to be indicated. The duodenal ulcer, which had been demonstrated radiologically several years previously, was considered to have healed under appropriate therapy. Consequently, for the four months prior to admission, she received cortisone orally, in doses of 100 mg. daily in divided doses. On this therapy there was considerable symptomatic improvement. One day prior to admission she began feeling faint and noticed melena. She was hospitalized and given a transfusion. Cortisone therapy was discontinued. On the day after admission, she suddenly developed precordial pain and dyspnea. Examination at this time revealed extreme respiratory distress, tachypnea, orthopnea, and cyanosis. Blood pressure was 95/65 mm. Hg; pulse rate, 100 per minute; respiration, 30 per minute; and temperature 100 F (37.8 C). There were diminished breath sounds at the right base and coarse rales at the left base. Examination of the heart revealed sinus tachycardia; the second pulmonic sound was accentuated. Sedimentation rate was 100 mm. per hour (Westergren) and hemoglobin level, 10 gm. per 100 cc.; white blood cell count was 10,000 per cubic millimeter, with a normal differential count. Chest roentgenogram revealed fluid at the right base, increased markings, and multiple plate-like areas of atelectasis at both bases. Electrocardiogram showed low T waves in leads 2, V_2, and V_3. Repeated electrocardiograms showed diphasic T waves and depressed S-T segments in the precordial leads. Cholesterol level was 390 mg. per 100 cc., with 250 mg. per 100 cc. esters. The diagnosis of multiple pulmonary infarctions was made. The patient was treated with bed rest, oxygen, antibiotics, and digitalis. Her condition remained critical for two weeks and improved slowly thereafter. Analyses of serum cholesterol revealed values between 340 and 390 mg. per 100 cc., with esters 205 to 250 mg. per 100 cc. There were no members of the patient's family available for study.

COMMENT

Considerable attention has been accorded certain of the complications attending the use of corticotropin and the cortisones. Physicians are constantly alert to the possibility of ulcerations with bleeding and perforation of the gastrointestinal tract, alterations of cardiovascular dynamics including those caused by salt and water retention, and abnormalities in the central nervous system, to name but a few possible sequelae. The likelihood of the occurrence of thromboembolic phenomena, a complication of corticosteroid therapy more likely to terminate fatally, has received less prominence than its seriousness and incidence warrant.

The group of patients presented in this paper developed thromboembolism after the institution of corticotropin or cortisone therapy for a variety of diseases. There was a striking time relationship between the institution of hormone therapy and the onset of the complications. The ages of these patients ranged from 38 to 52. Two patients were men and two were women. One patient was treated for a sprue-like syndrome, one for gout, and two for rheumatoid arthritis. Study of the group revealed one common denominator, namely, elevation of the serum cholesterol level above the upper limit of normal (280 mg. per 100 cc. by the Schoenheimer-Sperry method). In three instances in which family members were available for study, the familial character of the abnormality was suggestive.

Several clinical observations deserve brief discussion. In the patient in case 1, a myocardial infarction occurred after only three days of corticotropin therapy. This relatively short duration of therapy, in our opinion, does not preclude the possibility of a causal relationship. Eisenmenger and his associates [2] have observed portal vein thrombosis occurring after even shorter periods of therapy (see below). The patient presented in case 2 was fully ambulatory for a period of two weeks prior to the occurrence of pulmonary infarctions. Consequently, we do not believe that the exertion of changing a tire was an important contributing factor. The patient presented in case 3 was the only person of the four showing evidence of preexisting cardiovascular disease. He developed a pulmonary infarction after a short period of hydrocortisone therapy. It was not our impression that there was any relationship between the pulmonary infarction and the myocardial infarction that had occurred four years previously. In the patient presented in case 4, it is difficult to evaluate the possible role of anemia. It must be stressed, however, that the anemia was of moderate degree. The clinical impression in all these patients was that corticotropin and cortisone might have been a contributing factor in the production of the thromboembolic phenomena.

Predisposition to vascular disease is a common accompaniment of the error of lipid metabolism of which hypercholesteremia is a part.[2a] One may then conclude that any drug associated with the risk of thromboembolism should be used with caution in patients in whom the predisposition to vascular disease already exists. Our observations are in agreement with those of other workers who encountered thromboembolic complications after the use of corticotropin and cortisone. Cosgriff and his co-workers [1c] observed 40 episodes of thromboembolism in 28 of 700 patients treated with corticotropin or cortisone. Smith [1a] and Cosgriff [1b] demonstrated that a state of hypercoagulability results from steroid therapy. Cosgriff [1b] emphasizes the necessity for maintaining an awareness of the potentiality of these agents for producing a prethrombotic state, particularly in patients in whom other factors are present that also predispose to intravascular thrombosis. To these other factors, which include infection, postoperative and postpartum state, malignancy, and bed rest, we would like to add, on the basis of our experience, an abnormal state of lipid metabolism manifested by hypercholesteremia. In these individuals the combination of the predisposition to vascular disease and the tendency to hypercoagulability may act synergistically in producing intravascular clotting.

Eisenmenger and co-workers [2] observed portal thrombosis in three patients treated with corticotropin for cirrhosis of the liver. Cessation of gingival bleeding was observed in four patients. Since patients with advanced cirrhosis exhibit deficiencies in blood coagulation factors, including plasma prothrombin, fibrinogen, and platelets, these observations were of additional importance. It is of interest, however, that Russek and co-workers[3] failed to observe a single instance of thromboembolism in 86 patients suffering from advanced cardiovascular and/or cerebral vascular disease, who were treated with large doses of cortisone. Fourteen of these patients were bedridden, while 72 were ambulatory or semiambulatory. In our opinion, there is considerable risk involved in the use of corticosteroid therapy in patients suffering from coronary disease. We have seen several thromboembolic complications in patients in this category treated with corticosteroids.

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[2] Eisenmenger, W. J.; Slater, R. J., and Bongiovanni, A. M.: Hypercoagulability of the Blood of Patients with Hepatic Cirrhosis Following Administration of ACTH, Am. J. Med. **13**: 27, 1952.

[2a] Adlersberg, D.: Hypercholesteremia with Predisposition to Atherosclerosis: An Inborn Error of Lipid Metabolism, Am. J. Med. **11**: 600, 1951.

A question of practical importance concerns the use of anticoagulant therapy in individuals predisposed to vascular disease receiving corticosteroid therapy. Cosgriff[1c] and Eisenmenger[2] recommend the use of anticoagulants. The latter suggests the use of heparin in preference to bishydroxycoumarin. Russek[3] emphasizes that the potential dangers of anticoagulant therapy far outweigh those of corticosteroid therapy. The following case illustrates, however, the advisability of the use of anticoagulants in association with corticosteroid therapy in predisposed individuals.

CASE 5.—A 52-year-old man was suffering from the nephrotic stage of glomerulonephritis. He was treated with corticotropin and cortisone in an attempt to promote diuresis. He had had a myocardial infarction four years previously and subsequently had several attacks of angina pectoris. During the course of steroid therapy, he experienced attacks of crushing, severe chest pain, which subsided when the medication was discontinued. Although the electrocardiograms showed no changes, it was decided that, since these attacks were anginal in character, anticoagulants should be given in conjunction with the hormonal therapy. Whereas previously he had developed chest pains within a few days after the start of steroid therapy, he remained asymptomatic when anticoagulants were used simultaneously. On a subsequent occasion when cortisone was given without anticoagulants, he developed anginal pain and electrocardiographic evidence of acute myocardial infarction. The serum cholesterol level of this patient was in the range of 500 mg. per 100 cc.

SUMMARY

Four patients, ranging in age from 38 to 52 years, suffered thromboembolic accidents while undergoing treatment with corticotropin or the cortisones for a variety of illnesses. Serum cholesterol level was elevated in all of these patients, only one of whom had clinically evident preexisting cardiovascular disease. Examination of the members of the three families available for study defined the hypercholesteremia as being familial in nature. We suggested that the hypercoagulability induced by the corticosteroids, when superimposed on the vascular disease that may be associated with this metabolic error, acts synergistically to predispose the individual to thromboembolic phenomena. Caution in the administration of steroid therapy to hypercholesteremic individuals is advised. Prophylactic anticoagulant therapy may be indicated in some instances.

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[3] Russek, H. I.; Zohman, B. L., and Russek, A. S.: Risk of Thromboembolic Complications from Cortisone Therapy, Am. Heart J. 47: 653, 1954.

PARAGONIMUS WESTERMANI INFESTATION INVOLVING THE ANTERIOR ABDOMINAL WALL

REPORT OF A CASE SIMULATING ACUTE APPENDICITIS

Saul Kay, M.D., Richmond, Va.

As the geographical distribution[1] of Paragonimus westermani infestation in humans is generally confined to the Far East, and especially to parts of Japan, Korea, and Formosa, it is not expected that the American physician would ordinarily come in contact with patients harboring these parasites. The quartering of our troops in Japan, however, and especially the recent campaigns in Korea, should make us more alert to the possibility of eventually finding various disease syndromes attributed to this worm in American veterans. The case about to be discussed, while concerning a Korean woman temporarily residing in the United States, is of especial interest because of the rare involvement by the parasite of the anterior abdominal wall, so that the clinical picture of acute appendicitis was simulated.

The usual life history of Paragonimus westermani is as follows: The eggs are generally passed in the sputum or feces and under suitable conditions develop into two larval stages within the fresh-water mollusk host and fresh-water crabs and crayfish hosts respectively. If infested poorly cooked or raw crabs or crayfish are ingested, the encysted larva escapes from the digested cyst wall, penetrates the upper jejunum, and gains access to the peritoneal cavity. The parasite then penetrates the diaphragm to enter the pleural space and ultimately invade the lung, where maturation to an hermaphrodite adult worm takes place.

REVIEW OF PERTINENT LITERATURE

An extensive search through the literature reveals that the organisms may be found in many unusual locations within the human body, outside its natural and more usual habitat. Musgrave[2] in 1907 studied 17 cases, in 8 of which autopsy was done. Of the latter, skin lesions were present in two out of six cases where the skin was actually examined. Two out of eight cases showed lesions in the pectoral major muscle, and in three the psoas or other muscles contained abscesses.

A case similar to that of this paper was described by Choy and Ludlow[3] in 1926. These authors described a 25-year-old Korean male with a tumefaction in the epigastric region. Ova of Paragonimus were found in the sputum and feces. At operation, a vascular lesion was found adherent to the skin and muscle fascia. This was removed and the ova of the parasite identified within the vascularized connective tissue stroma. At follow-up, no ova could be discovered again within sputum or feces. The authors stated that this was the first case with in-

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From the Department of Surgical Pathology, Medical College of Virginia.

[1] Blacklock, D. B., and Southwell, T.: A Guide to Human Parasitology for Medical Practitioners, ed. 2, Baltimore, William Wood & Co., 1935, pp. 152-153.

[2] Musgrave, W. E.: Paragonimiasis in the Philippine Islands, Philippine J. Sc. 2: 15-65, 1907.

[3] Choy, P. D., and Ludlow, A. I.: Ova of Paragonimus Westermanii Encysted in Abdominal Wall, China M. J. 40: 326-328, 1926.

volvement of the abdominal wall to be found in Korea and that they could find no similar case recorded in the Western literature. Several references were appended, however, from the Japanese literature concerning parasites or ova found outside the lung. Choy and Ludlow [4] in 1931 subsequently reported two cases of Paragonimus encysted within the omental contents of inguinal hernial sacs.

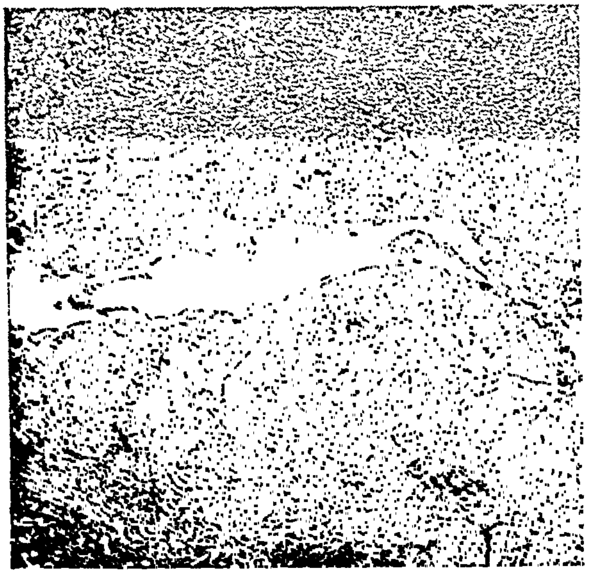

Fig. 1.—Granulomatous reaction in abdominal mass with central cystic degeneration (× 60).

In 1934 Bercovitz and Rogers [5] described the case of a 29-year-old Korean woman. She was admitted with abdominal swelling of several years' duration following a previous removal of large ovarian cysts. Following paracentesis an exploratory operation was done and the peritoneum found studded with vesicles. The mesenteric nodes were enlarged, and the clinical impression was abdominal carcinomatosis. Masses from the omentum as well as mesenteric nodes were excised for study, and these showed the ova of Paragonimus westermani. No adult worms were found.

A case involving the abdominal wall was also reported by Ko[6] in 1939. A 9-year-old Formosan boy had a mass in the left side of the abdomen that was associated with fever. Incision produced brown-yellow pus, and examination of discharges and curettings from the sinus wall showed many ova of Paragonimus. The author concluded that the origin of these ova was apparently from the migration of a fluke from the intestines to the muscles of the abdominal wall, where the eggs were subsequently laid to produce an abscess. A later check of the patient revealed cough and occasional ova within the sputum. A somewhat similar case was reported in 1947 by Pesigan and others.[7] A 28-year-old male Filipino was discharging pus through the umbilicus. At operation, a granulomatous mass was found attached to the umbilicus between the peritoneum and rectus sheath. Eggs of Paragonimus were identified in the granuloma, and serial sections failed to reveal an adult fluke.

Canizares and Celis [8] in 1951 reviewed their experiences with paragonimiasis seen at the Quezon Institute during the previous five years. They cited the rare invasion by the fluke into skin and muscle but gave no specific example. More recently Roque and others [9] discussed involvement of the skeletal muscles by the parasite, as well as lesions in the skin and subcutaneous tissues. Such involvement was presumed to be due to hematogenous dissemination.

REPORT OF A CASE

The patient, a 29-year-old Korean woman, was awakened at 1 a. m. by dull, aching pain in the right lower quadrant of the abdomen. Nausea and vomiting developed one-half hour later. This episode had been preceded the night before by localized myalgia. The pain had lessened somewhat after the attack of nausea and vomiting, but direct and rebound tenderness was quite marked over McBurney's area on physical examination. There were no other positive findings. History revealed infestation in Korea with Ascaris lumbricoides, but stools had become negative after medication. There was also a history of rather severe dysmenorrhea. The laboratory data showed a white blood cell count of 16,650 per cubic millimeter, with differential of 83% polymorphonuclear leukocytes, 16% lymphocytes, and 1% monocytes. The hemoglobin level was 12.4 gm. per 100 cc. The urine was essentially negative. The patient was operated on at 2:30 p. m., the day of the attack, after a diagnosis of acute appendicitis had been made.

On exploration a mass approximately 4 cm. in maximal diameter was found between the peritoneum and transversalis muscle, just below the McBurney incision. The mass was poorly circumscribed, appeared to involve a portion of the muscle, and showed a central excavation that communicated with the peritoneal cavity. The appendix, cecum, and terminal ileum appeared normal. The mass as well as the appendix was excised. The patient has remained perfectly well after operation. A follow-up chest roentgenogram was normal, and the patient has been unable to produce any sputum for examination for ova. To this writing all stool specimens have shown only ova of Trichuris trichiura and Trichostrongylus orientalis.

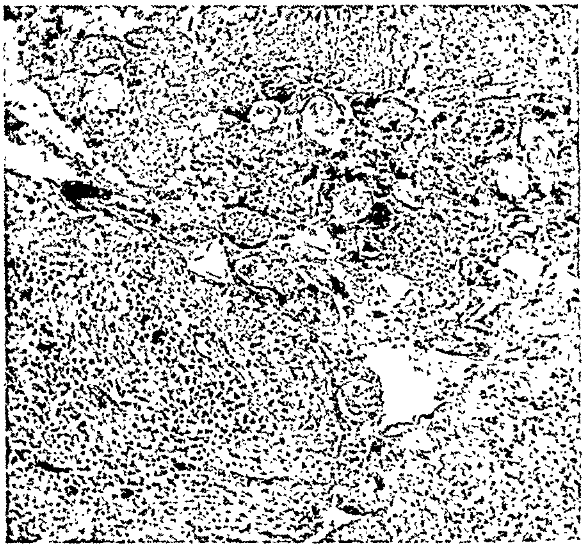

Fig. 2.—Higher magnification of right margin of figure 1 to show many well-defined ova (× 150).

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4. Choy, P. D., and Ludlow, A. I.: Paragonimus Westermanii Encysted in Sac of Inguinal Hernia, China M. J. 45: 556-559, 1931.

5. Bercovitz, Z., and Rogers, J. M.: Paragonimus Westermanii: Report of Case Presenting Abdominal Involvement, Puerto Rico J. Pub. Health & Trop. Med. 9: 492-496, 1934.

6. Ko, E.: Paragonimus Westermanii Abscess in Lower Abdominal Wall, Taiwan Igakkai Zassi 38: 544, 1939

7. Pesigan, T. P.; Torres, L. F., Jr., and Recio, P. M.: Paragonimiasis Westermani: Unexpected Case with Cystic Formation in Anterior Abdominal Wall, J. Philippine M. A. 23: 293-298, 1947.

8. Canizares, M., and Celis, J.: Observations on Paragonimiasis at the Quezon Institute, Dis. Chest 19: 668-675, 1951.

9. Roque, F. T.; Ludwick, R. W., and Bell, J. C.: Pulmonary Paragonimiasis: A Review with Case Reports from Korea and the Philippines, Ann. Int. Med. 38: 1206-1221, 1953.

PATHOLOGICAL FINDINGS

The extraperitoneal mass measured 4 by 2.5 by 1.5 cm. On cut section, gray, glistening tissue containing several cysts was revealed. These ranged from 5 to 18 mm. in diameter and had a dark red, rough lining. Light tan areas were also noted in the solid regions. The appendix was not remarkable. Microscopically the mass consisted of dense fibrous scar tissue and fat, which were the seat of multiple foreign-body-type granulomas. Some of the granulomas showed cystic degeneration, and there was a lining of epithelioid cells covered with a necrotic membrane (fig. 1). Within the cavity, as well as within the necrotic tissue and walls of the granulomas, there were numerous ova (fig. 2). The latter were generally oval and showed a thick yellow shell (fig. 3). Opercula could be identified in some of the ova, which also showed developing embryos (fig. 3). Though serial sections were made of the tissue, no adult worm was seen. The slides were shown to Dr. E. C. Nelson of the department of parasitology, who identified the ova as definitely belonging to Paragonimus westermani.

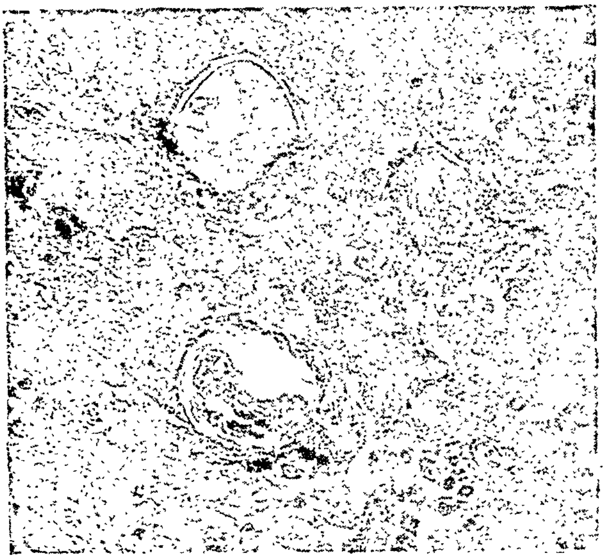

Fig. 3.—High-power view of ova to show greater detail. Note doubly contoured shell and developing larva in lower ovum (× 450).

COMMENT

The association of a simulated attack of appendicitis and paragonimiasis of the anterior abdominal wall must be a rare phenomenon. The granulomatous abscess caused by the ova of the worm was undoubtedly responsible for the localized pain in the right lower quadrant, since surgical removal has rendered the patient free of all symptoms. The systemic findings of nausea and vomiting are a little more difficult to explain but can be accounted for on the basis of absorption of toxic products caused by destruction of tissue.

The localization of the eggs of the parasite in the abdominal wall is a puzzling feature. The worm must have migrated to this site and subsequently died, since none could be found after serial sectioning of the surgically removed tissues. Whether migration took place from the intestine [6] or by way of the blood stream [9] cannot be proved, though the former method seems most probable. It is unlikely that the fluke has reached its usual site of the lung, since the patient has no cough or sputum and a chest roentgenogram is entirely negative.

SUMMARY

In a case of Paragonimus westermani infestation involving the anterior abdominal wall the patient had a simulated attack of acute appendicitis necessitating abdominal exploration. A poorly circumscribed mass was found in the anterior abdominal wall, which on removal was found to consist of a granulomatous abscess caused by the ova of Paragonimus westermani. The patient has been entirely free of symptoms after surgery, and follow-up studies of stool specimens have revealed no ova of Paragonimus.

1200 E. Broad St. (19).

EFFECT OF TOPICALLY APPLIED ANTIBIOTIC AGENTS ON AXILLARY ODOR

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and
Milton M. Cahn, M.D., Philadelphia

The distinctive odor of the axilla in man has long been correlated with the unique presence of apocrine sweat in this area. Recently, it has been shown that this odor is not an intrinsic property of apocrine sweat when it first appears on the skin surface.[1] It was found that the characteristic odor developed only after the normal surface bacteria had acted upon the apocrine sweat. This phenomenon of odor production by bacteria could be observed in vivo or in vitro. Also, it was discovered that the intensive use of the antibacterial hexachlorophene detergents could abolish odor for more than 18 hours in most individuals. The present study was undertaken to determine the effectiveness of topically applied antibiotic therapy on the inhibition of axillary odor.

MATERIAL

The following five preparations and control vehicles were studied as pairs, one being applied to each axilla, according to the method discussed below: (1) Myciguent cream, a cream containing 5 mg. of neomycin sulfate per gram (equivalent to 3.5 mg. neomycin base), and Myciguent cream base (control), a water-washable, nongreasy vanishing-type cream base containing methyl paraben 0.1%; (2) Mycimist, a lotion containing 5 mg. of neomycin sulfate per cubic centimeter (equivalent to 3.5 mg. neomycin base), and Mycimist base (control), a lotion containing methyl paraben 0.1%, and *n*-butyl *p*-hydroxybenzoate 0.4%; (3) Spectrocin, an ointment containing 2.5 mg. of neomycin hydrochloride per gram of neomycin base and 0.25 mg. of gramicidin per gram, and Spectrocin base (control), a non-water-absorbing ointment containing 95% mineral oil and

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From the Department of Dermatology, University of Pennsylvania School of Medicine.

Read before the Academy of Dermatology and Syphilology, Chicago, Dec. 9, 1954.

This study was supported by a contract from the Army.

[1] Shelley, W. B.; Hurley, H. J., Jr., and Nichols, A. C.: Axillary Odor: Experimental Study of the Role of Bacteria, Apocrine Sweat and Deodorants, A. M. A. Arch. Dermat. & Syph. 68: 430 (Oct.) 1953.

5% polyethylene; (4) Spectrocin lotion (not commercially available), a lotion containing 2.5 mg. of neomycin hydrochloride per cubic centimeter of base and 0.25 mg. of gramicidin per cubic centimeter, and Spectrocin lotion base (control), a lotion containing methyl paraben 0.2% and propyl paraben 0.02% in an aqueous vehicle; and (5) chloramphenicol (Chloromycetin) cream, a cream containing 10 mg. of chloramphenicol per gram of vehicle, and chloramphenicol cream base (control), a water-miscible cream containing 0.1% paraben. None of the preparations had a significant odor nor did they seem to mask odor.

TABLE 1.—*Effect of a Single Application of Antibiotic Creams on the Appearance of Axillary Odor in Man*

	No. of Subjects with Complete Absence of Odor in Axilla *			
Single Treatment with	1st Day	2nd Day	4th Day	8th Day
Myciguent cream	19	7	4	0
Chloramphenicol (Chloromycetin) cream	18	6	4	0
Myciguent vehicle	9	1	0	0
Chloramphenicol (Chloromycetin) vehicle	7	2	2	0

* Total number in each group: 25.

TABLE 2.—*Effect of Application of Antibiotic Preparations Twice Daily for Two Weeks on Axillary Odor in Man**

	Treatment									
	Patients					Controls				
	Myciguent Cream	Mycimist	Spectrocin Lotion	Chloramphenicol (Chloromycetin) Cream	Spectrocin	Myciguent Cream Base	Mycimist Base	Spectrocin Lotion Base	Chloramphenicol (Chloromycetin) Cream Base	Spectrocin Base
No. of subjects † with complete absence of odor 18 hr. after last application ‡	10	10	8	7	6	5	2	2	0	1

* Shaving, washing, or other treatment of area not permitted.
† Total number in each group: 10.
‡ Seven days after last application all subjects had strong axillary odor.

METHOD

The subjects were normal adult males who had not used axillary deodorants or antiperspirants for at least two months. In preliminary testing, all developed the typical axillary odor within 18 hours after washing the area with plain toilet soap and water.

An initial study was undertaken in the spring of 1954, to determine the effect of a single application of (1) Myciguent cream and (2) chloramphenicol cream. Twenty-five subjects were used in each of the two groups, and the antibiotic creams and placebo bases were applied immediately after washing the axilla to the point where no odor was detectable. No further applications or washings were permitted. Observations were made after one, two, four, and eight days (table 1).

In the fall of 1954 study was made of the effect of repeated daily application of each of the five antibiotic preparations and control bases to the axilla of 10 men. The first application was made immediately after the axilla had been washed free of odor. Then the antibiotics were applied liberally twice each day. Washing, shaving, and other topical applications were completely interdicted. Final readings were made two weeks later, 18 hours after the last application of the topically applied antibiotic and its paired control (table 2). Odor was simply recorded as present or absent. No attempt was made at grading or quantitation. Previous study had indicated the difficulties of measuring the degree or amount of odor, even with instrumentation. At all times the observers were kept ignorant of the treatment or procedures used by the subjects. The results are tabulated in tables 1 and 2.

COMMENT

Previous study [1] has shown micrococci (staphylococci) to probably be responsible for production of axillary odor. They are commonly the predominant flora of the normal human axilla. In this investigation neomycin in a concentration of 3.5 mg. base per gram proved to be the most effective topically applied agent. This might be expected on the basis of the work of Livingood and his associates [2] who demonstrated in vitro that neomycin is superior to all other antibiotics in regard to its effect on all strains of staphylococci. The present work adds confirmatory evidence that bacteria are the primary cause of axillary odor. The daily application of a neomycin cream or lotion was completely effective in preventing the appearance of any axillary odor in all of the subjects tested. It appears, however, that only repeated applications of neomycin in a concentration of 3.5 mg. of base per gram or more will prevent this formation of odor in the axilla.

Comment should be made regarding the effect of the control vehicles. In some subjects these bases proved effective, possibly due to their bacteriostatic action (parabens content) or to an adsorption or chemical change in the fatty acids known to be responsible for the odor.[3] This aspect of the problem was not studied. The standard commerically available aluminum deodorant preparations are highly effective and can be recommended to most individuals. However, in clinical practice Myciguent cream, Mycimist, and also Polysporin (polymyxin B sulfate, 10,000 units per gram) have proved of value for use in those few patients who do not tolerate the standard aluminum salt deodorants.

Two auxiliary studies were done to assay the effect of systemic antibacterial agents. In the first, 10 men who had received orally 2 gm. of chlortetracycline (Aureomycin) per day for three weeks were checked for axillary odor. All of them proved to have the characteristic odor. The second experiment was suggested by the observation of Kelley and Dittmer,[4] who found that milk from cows fed with menadione showed a lower rate of bacteriological souring than normal. Since apocrine sweat is a prototype of milk, it was reasoned that perhaps menadione was secreted by the apocrine as well as the mammary gland and that this could have a bacteriostatic effect on the axillary microflora with a consequent inhibition of axillary odor. Twenty men were given 50 mg. a day of menadione orally in divided dosage, and a control group of 20 was given placebo tablets. No difference in the axillary odor could be observed after one week of treatment.

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[2] Livingood, C. S.; Head, C. E.; Sutter, R. M., and Engley, F. B., Jr.: Comparative Effects of Neomycin and Other Antibiotics on Pyogenic Bacteria: In Vitro Effect on Bacteria Isolated from Cutaneous Pyogenic Infections, A. M. A. Arch. Dermat. & Syph. 69: 43 (Jan.) 1954.

[3] Nitta, H., and Ikai, K.: Studies on the Body Odor: I. Separation of the Lower Fatty Acids of the Cutaneous Excretion by Paperchromatography, Nagoya M. J. 1: 217, 1953.

SUMMARY AND CONCLUSION

Topically applied antibiotic agents have a considerable effect in preventing the appearance of normal axillary odor. The repeated application of neomycin cream or lotion (in a concentration of 3.5 mg. of base per gram of vehicle) completely inhibited the production of odor in the axilla of 20 men. This provides further evidence that axillary odor results from the action of bacteria on apocrine sweat. Clinically, the topically applied antibiotic agents provide an alternative measure for the patient who does not tolerate the standard aluminum salt deodorants.

[4] Kelley, G. G., and Dittmer, K.: Milk Souring: Effect of 2-Methyl-1,4-Naphthoquinone on the Rate of Souring of Milk, J. Agric. & Food Chem. 2: 741, 1954.

THORACIC AORTOGRAPHY

John W. Pender, M.D.
John W. Kirklin, M.D.
and
George D. Davis, M.D., Rochester, Minn.

Translumbar aortography has proved to be a useful diagnostic procedure, but it has some limitations. One of these is the difficulty in visualizing lesions of the upper abdominal aorta. To overcome this difficulty or to visualize suspected lesions of the thoracic aorta, the needle through which the contrast medium is to be injected has been introduced through the left posterior thoracic wall to pierce the aorta above the diaphragm. The following technique has been employed satisfactorily for six patients during the past year.

MATERIALS AND METHODS

All food and drink is withheld for four to six hours before the procedure. The patient, with no premedication, is placed prone on a roentgenographic table with arms abducted and forearms flexed so that the left hand is near the face, which is turned to the left. A lead marker is placed over the spinous process of the fourth or fifth thoracic vertebra and a scout (preliminary survey) film is taken of the thorax below the lead marker and of the upper part of the abdomen, depending on the location of the suspected lesion. While the scout film is being developed, a needle is inserted in a vein in the middle third of the left forearm and, if not contraindicated, 50 to 100 mg. of meperidine hydrochloride is given slowly and cautiously. After this injection, an apparatus is attached to the needle for later administration of 2.5% solution of thiopental (Pentothal) sodium.

From observation of the wet scout film, the most advantageous site for introduction of the special aortography needle (Becton-Dickinson no. 462, LNR, 6 in., 18 gauge) is carefully selected. The site at which the thoracic aorta extends the greatest distance to the left of the midline is usually chosen. This probably will be over the interspace below the left fifth, sixth, or seventh rib and can be accurately located on the skin from the known relation to the position of the lead marker, which is visible on both skin and film. The skin and subcutaneous tissue at this site are infiltrated with about 10 cc. of 1% solution of procaine hydrochloride. All equipment having been prepared and a test dose of 3 or 4 cc. of thiopental sodium having already been given without unusual reaction, the patient is now given an additional 4 to 8 cc. of thiopental sodium, depending on his reaction to the test dose. A competent anesthetist must be responsible for the maintenance of a satisfactory airway at all times.

As soon as the patient becomes lightly anesthetized, the aortography needle is inserted perpendicularly to the skin to pass just to the left of the left lateral surface of the body of the appropriate vertebra and to pierce the thoracic aorta or the descending portion of the arch of the aorta. A sense of resistance to the passage of the needle followed by a sudden disappearance of this resistance is usually felt as the tip of the needle pierces the wall of the aorta. Spurts of bright red blood through the needle, when the stilet is removed, are evidence that the tip of the needle is in a large artery. The entire lumen of the tip of the needle must be in the lumen of the aorta at the time the contrast medium is injected in order to avoid periaortic injection. One end of a transparent plastic tubing is now attached to the hub of the aortography needle by means of a Luer-Lok adapter (Becton-Dickinson no. H/468L), and a 20 cc. syringe, filled with 19 cc. of isotonic sodium chloride solution and 1 cc. of contrast medium, is attached to the other end of the plastic tube through a Luer-Lok one-way valve (Becton-Dickinson no. L606 and LL/S1). Ten cubic centimeters of isotonic sodium chloride–medium mixture is injected and then pressure on the plunger is released to see if blood will flow back into the plastic tubing in spurts.

If no reaction to the test dose of medium occurs, a syringe containing 20 cc. of 70% sodium acetrizoate (Urokon) or 75% sodium iodomethamate (Neo-Iopax) is attached to the one-way valve in place of the isotonic sodium chloride containing syringe and all members of the team should prepare to carry out their part of the procedure at the proper time. Accurate timing is essen-

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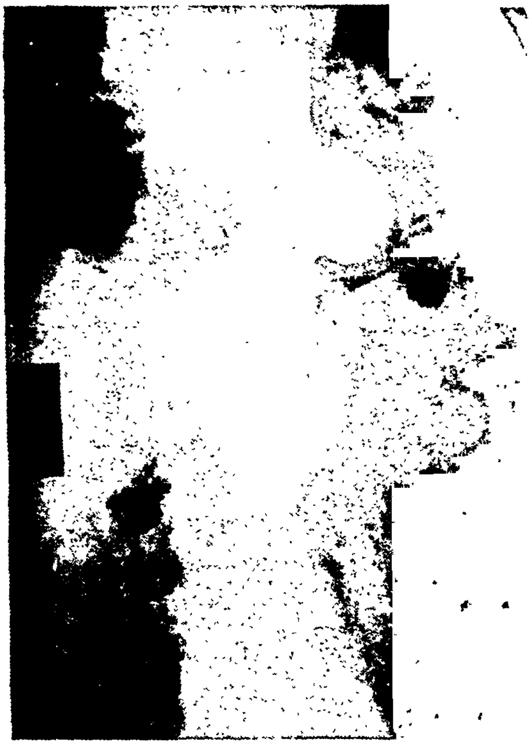
From the Section of Anesthesiology and Intravenous Therapy (Dr. Pender), the Section of Surgery (Dr. Kirklin), and the Section of Roentgenology (Dr. Davis), Mayo Clinic and Mayo Foundation.

The Mayo Foundation is a part of the Graduate School of the University of Minnesota.

tial for obtaining good roentgenograms with small amounts of medium. One member of the team should give the signals, usually the one performing the injection. The anesthetist gives 4 to 8 cc. of thiopental sodium and, as soon as this takes effect, the 20 cc. of medium is injected in two to three seconds. Just before the last of the contrast medium is injected, the roentgenogram is taken, using an exposure time of 0.1 second. All needles should be left in place until the wet film can be studied for the information desired. If necessary, a second injection of medium and a second aortogram may be made.

COMMENT

By means of thoracic aortography in these six patients the following diagnoses were made: two aneurysms of the thoracic aorta (see figure) associated with fusiform dilatation of the abdominal aorta, one aneurysm of the hepatic artery, one arteriovenous fistula between right renal artery and vein, and two normal aortas for which abdominal exploration had been recommended after the clinical diagnosis of aneurysm of the proximal part of the abdominal aorta. In spite of no complications having occurred in these patients, thoracic aortography is not recommended as a routine procedure, but we believe it is a valuable diagnostic aid for special problems. Pneumothorax and hemorrhage from puncture of the aorta or intercostal arteries were carefully looked for after each of these procedures, but none occurred.



Thoracic aortogram showing two aneurysms of distal thoracic aorta.

CONCLUSIONS

Transthoracic aortography is a valuable aid in diagnosing lesions of the lower thoracic aorta and the upper abdominal aorta and its branches.

DIAGNOSTIC PROBLEMS

PRESENTATION OF CASE

James M. Kidd, M.D., Chicago

In February, 1948, a 5-year-old girl had measles followed by chickenpox. During this time she began to have attacks of abdominal pain associated with vomiting. At times the vomitus was said to contain small blood clots. These episodes lasted two or three days and were infrequent. In August they became more severe and more frequent, occurring every week and associated with a temperature of 102 to 103 F (38.9 to 39.4 C). She was able to go to school between attacks, but her teachers stated that she seemed to be listless. In November, December, and January she received combined diphtheria, pertussis, and tetanus immunization. She was sick after each dose. On Jan. 27, her mother noted a yellow tint to her scleras, and within a week her skin was definitely jaundiced. Associated with the onset of visible icterus was the presence of dark urine and white stools. On a fat-free diet the jaundice lessened but did not entirely clear. In the next two months she had two similar episodes in which the jaundice became more intense and was associated with abdominal pains and white stools. On April 22 she was admitted to the hospital.

Physical Examination.—On admission the patient was moderately jaundiced and had an enlarged, firm, tender liver, whose edge extended two fingerbreadths below the right costal margin. The spleen was not palpable, and no lymphadenopathy was present.

Laboratory Findings.—Icteric index was 91 units; van den Bergh gave strong direct and indirect reactions; total protein level was 9.6 gm. per 100 cc.; albumin level was 4 gm. per 100 cc.; globulin level was 5.6 gm. per 100 cc.; cephalin flocculation test was 4+; cholesterol level was 200 mg. per 100 cc.; cholesterol esters, 70 mg. per 100 cc.; urine, 4+ bile and urobilinogen 0.7 mg. per 100 cc. on a single voided specimen; stool tests were negative for bile and urobilinogen was 2+; and blood cultures were negative.

Course.—The patient remained at bed rest for three weeks and received a high-protein, high-carbohydrate, high-vitamin diet. Her jaundice lessened, the icteric index decreasing to 62. Her stools remained pale but not completely acholic. She was sent home on May 12. Following discharge she felt generally better, but the icterus did not lessen and a history of intermittent light and dark stools was obtained. The urine was persistently dark and always contained bile, and the liver remained enlarged. Her icteric index on June 18 was 143 units and on Aug. 15 was 123 units. She was readmitted at this time, and a liver biopsy showed disruption of liver cell cords. The liver cells were large, swollen, and granular, and many cells contained four to eight nuclei. The laboratory findings were essentially the same as those found three months earlier.

From the Otho S. A. Sprague Memorial Laboratory, Children's Memorial Hospital.

In the next two years she was followed in the clinic, during which time she had infrequent attacks of asthma. Jaundice, to some extent, was always present, and her liver remained firm and enlarged. On Nov. 19, 1951, this child, then 9 years old, was again admitted to the hospital. She appeared critically ill and complained of abdominal pain of sudden onset and diarrhea of one day's duration. A roentgenogram of the abdomen revealed no evidence of intestinal obstruction but did reveal an oval density in the right upper abdominal quadrant. There was a "ground glass" appearance to the rest of the abdomen. The patient was still moderately icteric. Her liver extended to the level of the umbilicus, and a fluid wave was demonstrable by abdominal palpation. An abdominal paracentesis was performed, and 600 cc. of sterile bile-containing fluid with 16.5 mg. of protein per 100 cc. was removed. She was discharged after four weeks improved and was readmitted on Feb. 7, 1952, with a history of low-grade fever and severe pain in the right side of the abdomen associated with anorexia of six weeks' duration and a more constant low-grade fever of 12 days' duration. On admission the liver was palpable in the epigastrium but not below the right costal margin. A firm spleen was felt five fingerbreadths below the left costal margin. The skin was clear and nonicteric. The abdominal pain disappeared soon after admission, and after an intravenous pyelogram, which revealed no abnormality, the child was discharged on the sixth day.

Laboratory Findings

Tests	1949				1951		1952				1953		1954				1955
	4/24	5/3	6/18	8/15	11/19	12/27	2/8	3/19	6/23	8/5	1/19	5/20	3/9	3/22	4/24	11/13	1/7
Cephalin flocculation	4+	...	...	4+	2+	4+	4+	3+	3+	3+	3+	3+	4+	3+	4+	4+	...
Thymol turbidity, units	...	...	...	...	6.0	6.0	9.0	7.0	...	8.5	6.0	5.5	12.0	5.5	10.0	8.0	...
Icteric index, units	91	62	143	123	33	19	16	...	11	...	...	...	...	16	...	...	...
Bilirubin, van den Bergh, mg. per 100 cc., direct/indirect *	...	...	...	...	...	...	...	...	†	...	...	0.2/ 1.8	0.5/ 2.0	0.6/ 1.6	...	5.3/ 3.1	...
Total protein level, gm. per 100 cc	9.6	...	...	9.1	5.5	5.4	6.1	6.9	...	...	...	6.6	7.0	...	7.0	6.2	6.0
Albumin level, gm. per 100 cc	4.0	...	...	3.3	1.9	1.4	2.3	2.8	...	...	...	3.8	3.1	...	3.4	2.1	2.0
Globulin level, gm. per 100 cc	5.6	...	...	5.8	3.6	4.07	3.8	4.1	...	...	...	2.8	3.9	...	3.6	4.1	4.0
Blood cholesterol level, mg. per 100 cc.	200	...	...	100	156	...	...	...	208	168	120	226	334	219	236	105	...
Cholesterol esters, % of total	36.5	...	...	30.0	35.0	...	...	...	...	60.7	63.3	61.0	40.4	47.9	67.7	53.2	...
Alkaline phosphatase level, units per 100 cc	...	...	...	...	4.7	...	...	...	...	...	...	11.7	9.6	9.0	...	18.2	...
Urine bile	4+	...	...	4+	1+	...	...	...	...	1+	1+	...	1+	...	...	...	2+
Urine urobilinogen, mg. per 100 cc	0.7	...	...	0.9	...	...	...	...	...	...	0	...	...	...	...	...	...
Stool bile	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Stool urobilinogen	2+	...	...	1+	...	...	...	...	...	...	...	...	...	...	...	...	...

* Strong immediate direct and indirect reaction.
† Biphasic moderately delayed direct and indirect reaction.

She was readmitted on March 6, 1954. She was then 11 years old and for the past 18 months had been permitted fairly normal activity. Except for an occasional feeling of fatigue she felt generally well. For three weeks prior to admission she had noted blood in her urine. For two weeks previously she had rectal bleeding. Bleeding from the gums of two days' duration was also noted. Physical examination revealed her liver to be enlarged to two fingerbreadths and her spleen to three fingerbreadths below the costal margin, both being firm to palpation. Her skin was pale but not icteric. She exhibited palmar erythema, skin atrophy, multiple telangiectasia, and several spider angiomas. A complete genitourinary study revealed no source of bleeding. Fluoroscopy of the esophagus failed to demonstrate any varices. A cholecystogram revealed poor visualization of the gallbladder about the previously noted opacity, which has increased somewhat in size. The patient's prothrombin time was slightly increased. A sigmoidoscopic examination added no further information. The urine became free of blood, and she was discharged.

She returned to the hospital in May, 1954, and a contracted, deformed gallbladder, containing no bile but two moderate-sized pigmented stones, was removed. The liver was described as being small, firm, and nodular. A biopsy specimen was taken, and sections revealed prominent perilobular fibrosis, round cell infiltration, and proliferation of bile ducts. The patient's postoperative course was unremarkable, and she was discharged on the 12th day. In November she was readmitted, complaining of progressive abdominal swelling of one month's duration and swelling of the feet for two days prior to admission. Physical examination revealed mild scleral icterus, hepatosplenomegaly, ascites, and peripheral pitting edema of the lower extremities. Blood studies revealed further reversal of the albumin-globulin ratio and elevation of serum bilirubin level, predominantly direct. On bed rest her edema decreased and she became more comfortable. She was discharged on the 10th day. Her edema persisted, and when she was seen at the clinic from time to time her urine contained albumin and occasionally erythrocytes. On May 31, 1955, she suddenly became confused and unresponsive and was admitted to the hospital for the eighth time. Physical examination revealed peripheral edema, ascites, and dehydration. In spite of the judicious use of intravenously administered fluids and supportive therapy she failed to respond. She died within 24 hours of admission (see *table*).

ANATOMIC DIAGNOSIS

The body was that of a slightly icteric but relatively well-nourished and well-developed child of 12 years; 100 cc. of clear, straw-colored fluid was found in the peritoneal cavity. A few adhesions extended from the duodenum to the scarred bed of the previously removed gallbladder. The liver weighed 700 gm. (average normal 1,000 gm.) and presented both a nodular and finely granular surface. The cut surface was dark yellow-brown and lobulated. Glisson's capsule was greatly thickened.

The spleen was enlarged, weighing 850 gm. (average normal, 100 gm.). On cut section a moist purple surface was exposed. The heart was grossly normal. The lungs were diffusely congested. The lower third of the esophagus presented a few faintly visible varices. Microscopic sections of the liver revealed a thickened capsule from which connective tissue septums of variable width extended inward to form an irregular anastomosing network giving a pseudolobular pattern to the hepatic parenchyma. The lobules varied greatly in size. The broad connective tissue bands were characterized by proliferation of bile ducts and capillaries and the presence of either localized or diffuse aggregations of chronic inflammatory cells. Rare areas showed almost complete replacement of hepatic cells by a more dense fibroblastic connective tissue with similar or even more pronounced proliferation of bile duct epithelium. Most of the circumscribed islands of liver tissue revealed a widespread parenchymal degeneration as evidenced by vacuolization, cytoplasmic smudging, and loss of nuclear detail. The spleen presented a picture of intense congestion and subcapsular fibrosis. Varices were found in sections through the lower part of the esophagus. A widespread, pronounced congestion of the lungs was present.

COMMENT

Joseph D. Boggs, M.D., Chicago

This case well illustrates the prolonged course and eventually fatal termination of cirrhosis in childhood. The early phase of the disease in this child, the progression of changes seen in the liver biopsy specimens, and certain of the laboratory examinations are worthy of special note. From the beginning of the child's illness until the time of the first appearance of jaundice, 11 months elapsed. During this period the patient had bouts of abdominal pain, vomiting, and fever without any indication of clinical jaundice. Although the beginning of illness appeared to coincide with measles and chickenpox, prolonged vomiting productive of blood is exceedingly rare following either of these diseases, particularly when associated with abdominal pain. One is therefore led to the possibility of a long period of liver disease before the appearance of overt symptoms readily suggesting hepatic damage. The patient received hypodermic injections about 60 days before the development of jaundice. The possibility of a chance inoculation with hepatitis virus exists, for this incubation period is well within that for homologous serum hepatitis. Hepatitis without jaundice is well known. Stokes,[1] working with human volunteers; Denber [2]; Capps [3]; and others have reported such cases. If changes as seen in the first liver biopsy specimen here reported represent a viral hepatitis as reported by some, the early stage of this child's disease may represent a subacute case of hepatitis. Several writers have emphasized the prominence of abdominal pain and vomiting in conjunction with the anicteric form of hepatitis.[4] The liver should not be overlooked as the possible source of disease in the nonjaundiced child with prolonged abdominal pain or vomiting.

The liver biopsy specimens are of particular interest, in that they demonstrate a progression of liver changes. The first specimen in this case was taken 18 months after the onset of vomiting and abdominal pain and 10 months after onset of jaundice. In this specimen cirrhosis was not present, but instead the liver cells were described as swollen, granular, and multinucleated. These changes are not those seen in the early stages of the development of cirrhosis in adults but have frequently been reported in children. Gellis,[5] Craig,[6] Schwartz,[7] and others have described the formation of giant cells in infants and a hepatitis of viral origin has been suggested as a causative factor.[6] In a number of such patients reported by Gellis [5] and exhibiting identical liver changes early in the disease, cirrhosis developed later in childhood. It would appear that the early changes seen here represent a stage of rapid hepatic regeneration with amitotic division of the proliferating cells, producing so-called liver giant cells. Craig and Landing,[6] describing the changes seen in infantile as opposed to adult hepatitis, suggested a difference in blood supply and infantile liver resistance to necrosis as a possible explanation for the difference. Also to be considered is the inherently greater cellular capacity for regeneration in liver cells of children. The second liver biopsy specimen, following by nine months the first, presented different findings, the liver having developed a well-advanced cirrhosis. The liver at autopsy revealed a cirrhosis not appreciably far-progressed beyond that seen in the second biopsy specimen.

Laboratory findings at each hospital admission revealed abnormal thymol turbidity and cephalin cholesterol flocculation and increased 1 and 30 minute van den Bergh readings. Although acute infections may produce transitory changes in liver function, these changes are not as prolonged or as marked as those noted here. Hepatitis virus most frequently produces these changes. The consistently high total protein with an absolute increase of the globulin is noted to have developed in this patient before the development of cirrhosis. This change had occurred concomitant with the period of "giant cell" hepatitis. Although measurements are not given here of specific protein fractions, a rise of the gamma and beta globulin fractions in the serum of patients with hepatitis is generally recognized. Although much circumstantial evidence suggests that hepatitis virus exists in children such as this one, with later development of cirrhosis, all of the story has not been told. The possibility of viral infectious agents other than those producing infectious hepatitis or homologous serum hepatitis must be entertained. Hepatitis in children is not uncommon, nor is cirrhosis an oddity in the wards of a children's hospital. Little is known regarding the epidemiology or etiology.

From the Otho S. A. Sprague Memorial Laboratory, Children's Memorial Hospital.

[1] Stokes, J., Jr., and others: The Carrier State in Viral Hepatitis, J. A. M. A. 154: 1059-1065 (March 27) 1954.

[2] Denber, H. C. B., and Liebowitz, S.: Acute Anicteric Virus Hepatitis, J. A. M. A. 149: 546-549 (June 7) 1952.

[3] Capps, R. B., and others: Infectious Hepatitis in Infants and Small Children, A. M. A. Am. J. Dis. Child. 89: 701-716 (June) 1955.

[4] Footnotes 2 and 3.

[5] Gellis, S. S.; Craig, J. M., and Hsia, D. Y. Y.: Prolonged Obstructive Jaundice in Infancy, A. M. A. Am. J. Dis. Child. 88: 285-293 (Sept.) 1954.

[6] Craig, J. M., and Landing, B. H.: Form of Hepatitis in Neonatal Period Simulating Biliary Atresia, A. M. A. Arch. Path. 54: 321-333 (Oct.) 1952.

[7] Schwartz, M. U.; Gilman, R. A.; Schwartz, M., and Settle, J.: Neonatal Hepatitis: Report of a Case Simulating Obstructive Jaundice, J. A. M. A. 155: 557-559 (June 5) 1954.

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CORPORATE GIVING TO HOSPITALS

Added evidence of the disappearance of the soulless corporation is the rather liberal support given by many companies to nonprofit, tax-exempt hospitals. The facts that the gifts are deductible from the corporate earnings and that the company must justify the expenditure to the shareholders by showing that its employees benefit by having the hospital in the community do not alter this view. Because most companies now recognize a responsibility to the community in which they operate and support local hospitals with gifts of money, equipment, or services such as electric power, the National Better Business Bureau conducted a survey to determine (1) what criteria corporations use in deciding whether to support a given hospital and (2) how they decide how much to give.[1] Although the maintenance and operation of hospitals has become one of the country's 10 top industries, the nonprofit hospitals have never been completely self-supporting. In 1954 the average cost to these hospitals of patient care per patient per day was $22.78. The patients paid directly or through their insurance an average of only $21.07, leaving a deficit of $1.71 per patient per day. This deficit must be made up through gifts large and small, and much of it now comes from business organizations. The exact amount cannot be determined, because some corporate contributions to community funds include hospitals along with other charities and contributions to medical schools are applied in part to research and teaching hospitals. Many firms contribute to hospitals substantially but indirectly by paying a certain proportion of the hospital insurance carried by their employees.

According to the survey, 20% of the companies participating had no firm policy governing their giving but 56% based their giving on the extent to which the hospital was in a position to benefit their employees. Other useful criteria applied by some companies included (1) proof that the hospital needed funds to supplement their receipts; (2) proof that the hospital served the community as a whole without imposing racial, religious, or other restrictions on the patients; (3) proof of efficient operation with a view to eventually becoming self-supporting; and (4) proof of acceptance by the Joint Commission on Accreditation of Hospitals. Determination of the amount of their contribution was based on such factors as so much per employee, the number of bed-days of care furnished to employees in the preceding year, the total amount of individual contributions made by the employees, a percentage of the total amount of the drive, a percentage of the company's total allotment for philanthropies, recommendations of local management, and the size of the contributions made by other companies in the area coupled with relative size and importance of the company in the community. More often than not a combination of these considerations entered into the determination of the amount to be given. Some companies used a formula based on the number of their employees, the average size of family per employee, the population of the area served, and the amount the hospital sought to raise. Many participants believed however that a formula, if used, should not be too rigid but should rather serve as a guide.

The survey was strictly a fact-finding device and was not meant to establish any policies, but rather, by presenting various approaches to the two problems presented (whether to give and, if so, how much), to stimulate those in management to think of the problems in terms of their own special situation. Having done so, it is hoped that they will not only continue to give but to give wisely.

EDUCATION OF PHYSICIANS FOR INDUSTRY

In early December, the National Fund for Medical Education with the co-sponsorship of the Council on Medical Education and Hospitals and the Council on Industrial Health of the American Medical Association, as well as the Association of American Medical Colleges, conducted a conference on the Education of Physicians for Industry at the Mellen Institute in Pittsburgh. Medical educators, occupational physicians, and industrialists engaged in three days of panel discussions and symposiums designed to evaluate the problems and growing needs in the important field of occupational medicine.

The education of physicians for industry was discussed from undergraduate, graduate, and postgraduate aspects. It was generally agreed that occupational medicine is that branch of medicine that deals with the relationships of man to his occupation for the purpose of the prevention of disease and injury and the promotion of optimal health, productivity, and social adjustment. Due recognition was given to the fact that American industry is the backbone of modern American civilization and is perhaps the greatest reason for our nation's preeminence in world affairs today. Obviously, our working force is industry's most valuable asset, and the health problems of all engaged in industry are of vital concern to continued national progress.

One of the important problems confronting medical educators and occupational physicians is the necessity of creating an awareness of, and interest in, this field among teachers and students in our medical schools. This does not appear to necessitate any radical revision of undergraduate curriculums, but it does involve the introduction into undergraduate clerkships of contact with qualified industrial physicians as members of the teaching staff. Physicians engaged in this field of medical care have a genuine challenge in effectively presenting the needs of occupational medicine so that interest and awareness is aroused in their professional colleagues as well as in medical students.

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[1] Corporate Contributions to Hospitals, New York, National Better Business Bureau, Inc., 1955.

Graduate educational opportunities in the field of occupational medicine are increasing. A sound graduate educational program has been outlined, with standards and approval mechanisms as well as training facilities carefully described. Relatively recently an American Board of Occupational Medicine has been developed as one of the special certifying units of the American Board of Preventive Medicine; this should be a further stimulus to attract qualified physicians into this field. The need of special postgraduate opportunities for physicians in private practice who give part time to certain aspects of occupational medicine constitutes another area of challenge to medical education.

The National Fund for Medical Education and its co-sponsors are to be congratulated for developing this timely and important conference on the education of physicians for industry. The intercommunication that took place did much to clarify some areas of misunderstanding and to highlight areas of mutual concern to industry and to medicine. It is to be hoped that the proceedings of this useful conference will receive widespread distribution to industry as well as to the administrators and faculties of our medical schools. The field of occupational medicine represents a dual challenge meriting wholehearted support of medical educators and industrialists.

DILATATION OF ESOPHAGUS (MEGAESOPHAGUS)

Megaesophagus is a distinct disease entity characterized by dysphagia and abnormal dilatation of the organ. The terms cardiospasm, achalasia, and megaesophagus have been used interchangeably for many years. According to Effler and Rogers,[1] this is unfortunate and adds unnecessary confusion to an already confused state of affairs. They assert that the terms cardiospasm and achalasia imply lack of relaxation of the cardiac sphincter; in other words, the circular muscle of the terminal esophagus fails to relax in coordination with the act of swallowing and dysphagia ensues. In patients in whom functional cardiospasm occurs, even the most careful radiographic and endoscopic examinations rarely demonstrate an organic pathological condition. Indeed, the most important feature of functional cardiospasm, or achalasia, is that it is not followed by progressive dilatation of the esophagus. For that matter, neither is megaesophagus the end-product of mechanical obstruction.

Megaesophagus is a distinct organic disease entity associated with obvious structural change, quite different from achalasia or functional cardiospasm. This disease occurs at all ages. Patients with megaesophagus may present severe nutritional disturbances, with profound weight loss and the appearance of frank starvation. This does not occur in functional cardiospasm. Although the etiology of megaesophagus is unknown, Effler and Rogers maintain that the disease is featured by a pathological contraction of the circular muscle in the cardiac esophagus and by proximal dilatation of the organ. The diagnosis of megaesophagus is based on the clinical history and on radiography. Dysphagia secondary to the contraction of the hypertrophic inferior constrictor muscle and food retention are the major clinical features of the disease. Radiographic findings offer a conclusive diagnosis in most cases. On the other hand, with simple cardiospasm the esophagus may be quite normal in appearance, with some delay occurring as the barium enters the stomach. In megaesophagus, the organ clearly shows dilatation and impairment or absence of normal peristalsis.

Medical therapy and dilation offer symptomatic relief in most instances of cardiospasm or achalasia. Careful distinction, however, should be made between patients with functional cardiospasm and patients who have the characteristic organic changes of megaesophagus. Attempts to relieve the tonic contraction of the cardiac sphincter and megaesophagus by means of sympathomimetic drugs, sedatives, antispasmodics, or procaine derivatives have been singularly unsuccessful. A wide variety of dilation procedures have been recommended in the treatment of megaesophagus. In selected cases, where the esophagus is not tortuous, bouginage is sometimes successful; in other instances, patients who have had repeated dilations over a prolonged period of time display transient improvement only.

Effler and Rogers recommend surgery in patients with clinical evidence of true megaesophagus in whom there are no obvious contraindications to surgery. In general, surgical intervention to correct megaesophagus has utilized both the abdominal and the transthoracic routes. Although many operative modifications have been proposed, they differ primarily in detail and conform to one of three basic approaches: (1) esophagogastroplasty, (2) linear myotomy, and (3) subtotal resection and anastomosis of the esophagogastric cardia. In 1951, Wangensteen[2] described an extensive procedure in which the terminal esophagus as well as the upper stomach are resected, with a direct anastomosis between the esophagus and the gastric remnant. In the opinion of Effler and Rogers, treatment by linear esophagomyotomy offers prompt and lasting relief of symptoms. In a group of 32 patients treated surgically, 12 were treated by esophagocardioplasty, and all but 3 required a secondary operation. The 20 patients who were treated by transthoracic linear myotomy obtained complete relief from dysphagia and food retention.

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[1] Effler, D. B., and Rogers, J. W.: Megaesophagus: Surgical Therapy, A. M. A. Arch. Surgery 71: 551 (Oct.) 1955.

[2] Wangensteen, O. H.: A Physiologic Operation for Mega-Esophagus: (Dystonia, Cardiospasm, Achalasia) Ann. Surg. 134: 301, 1951.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

Many physicians have written to me and have asked why the American Medical Association is opposed to the physicians of the country being included in the Social Security program. About twice as many others have written and demanded that the A. M. A. never become a part of the Social Security "fiasco," as they call it. Between these two extremes there must be an answer to the whole problem. Let us see if we can find it. As I have traveled around the country, I have found a great deal of misinformation concerning the whole Social Security program. The men who want Social Security are the younger men, who are desirous of family protection in case they die. They are enthusiastic about the survivors' benefits. They claim that these benefits are much greater than any they can buy from the private insurance industry for the price they pay. These men are not interested in the retirement benefits that come to the man or woman at age 65, for they know they can, except in rare instances, earn more than $1,200 or $1,400 yearly long after they attain the eligible age. The older men and the younger men both are not interested in these latter benefits. Most men in both categories are amazed when I tell them that the House of Delegates of the American Medical Association has never been opposed to voluntary inclusion of physicians in the program.

Let us then look at some pertinent facts: First, Social Security was originally intended, back in the middle 1930's, to take care of the elderly worker when he was out of a job, so that the younger man could have work. It was a service that was to be supported by a tax on wages and a tax on management. Today, from an insurance angle, the tax premiums are not based on sound actuarial figures, because not one single individual who is drawing Social Security benefits has contributed or paid rates that from a strictly insurance point of view are sound actuarially. The insurance industry points out that at age 65 the life expectancy of an individual is 14 years. That means that $14,000 would have to be set aside from the premiums paid (taxes) to satisfy the demand. That also means that no one today drawing Social Security has paid in as premiums (taxes) as much as $1,000, yet they will draw an average total of $14,000 for the balance of their lives. To make it completely simple—the young man today is paying the tax premium to cover this inadequacy.

Let us look then for a moment at what has happened. Each succeeding Congress has amended the Social Security bill, adding more and more benefits, and the tax premium will be soon getting larger and larger. This is a deductible tax at the source. The last benefit added was the total disability freeze. Before the ink was dry on that one, and before anyone could find out what the effect would be on the tax premium, the House of Representatives before recess passed H. R. 7225, which reduces the age for women from 65 to 62 years, and added the provision for cash total disability payments to anyone age 50 or above. This bill passed the House without any public hearings and by a parliamentary procedure with limited floor debate. The bill is now in the Finance Committee of the Senate. We are obliged to oppose this bill because it definitely puts the physician in the middle of what could be a very dangerous situation. Carrying out the provisions of this amendment could place the whole Social Security financial program in jeopardy or up the premium taxes to such an extent that eventually the younger worker, compelled to contribute a larger and larger share of his wages, would rebel against the whole program. The American Medical Association is not opposed to Social Security. We are opposed to having the benefits increased by Congress at each session because we believe that (1) we will find we cannot afford it, (2) when dependency upon the federal government increases beyond a certain point we will automatically have the welfare state firmly established, and (3) a welfare state is state socialism, and state socialism is the first cousin of Soviet communism.

For the above reasons we are intensely interested in H. R. 7225. We will be obliged to join with many other groups and organizations that fear the destruction of free enterprise, and that believe that rich though we are we cannot afford this latter extravagance, to petition the Senate to stop, look, and listen before they pass this legislation. We would ask that this whole Social Security problem be removed from politics as such and that a thorough study of the whole problem be made by a commission appointed either by the Senate or by the President. If such a study is made, we, together with many of our friends in other walks of life, feel that the Social Security program can be made to work effectively, that it will more than accomplish the purpose for which it was originally intended, and that removed from politics it will serve a useful purpose. Is this too much to ask? Or is the need for votes so important that otherwise conservative and patriotic citizens who represent us in our legislative halls are willing to sell their own as well as our birthright for a mess of pottage?

ELMER HESS, M.D., Erie, Pa.

ORGANIZATION SECTION

WORLD MEDICAL ASSOCIATION MEETING IN VIENNA

Following is a brief abstract of the proceedings of the ninth general assembly of the World Medical Association. —ED.

The Neues Rathaus in Vienna, Austria, was the site of the ninth general assembly of the World Medical Association from Sept. 20 to 26, 1955. Delegates and alternate delegates from 35 national medical associations were present. The sessions were also attended by representatives of 16 other international organizations and 10 national organizations and by 179 members of the United States Committee, Inc., of the World Medical Association. The ninth general assembly was the first international medical group to convene in Austria since this country was freed of occupying forces.

The assembly was convened by Prof. Dr. A. Spinelli of Italy, who in his presidential address pointed out that the World Medical Association has acquired world-wide prestige, esteem, and recognition. Each year the scope of activities and the enthusiasm and responsibility of the delegates increase.

Greetings and words of welcome were heard from Dr. Theodor Korner, President of the Federal Republic of Austria; Dr. Karl Niederberger, President of the Austrian Medical Association; His Honor, the Lord Mayor of Vienna; Mr. Karl Maisel, Minister of Social Affairs; and the President of the National Board of Trade.

The ninth general assembly elected Dr. Karl Niederberger, Austria, president for 1955-1956. Dr. Niederberger assumed the chair and delivered his inaugural address (*World Medical Journal,* vol. 2, no. 6, November, 1955), pointing out that the aim of the doctors of the world must be to serve suffering humanity. Prof. Dr. L. A. Hulst, Netherlands, on the request of the president and with the approval of the council, was elected presiding officer for the business sessions.

Amendments to Constitution and Bylaws

Following the return of delegates and the adoption of the standing orders, bylaw 19, paragraph ii of the constitution and bylaws, which provides the authorization for other delegations to represent member associations unable to attend, was adopted for the duration of the session.

Article 18 of the bylaws was amended to provide for the appointment of a presiding officer for the business sessions of the general assembly if the president so desires. Article 32 of the bylaws was amended to provide the appointment of a group to administer the affairs of the association in the event that financial or other emergency situations made it impossible for the council to be convened as a whole.

Applications for Membership

Membership in the association was granted to the following national medical associations:

Medical Confederation of Morocco
(Confédération des Syndicats Médicaux du Maroc)
Vatican Medical Association
(Associazione Medica Dello Vaticano)
Medical Federation of Venezuela
(Federación Médica Venezolana)

Report of the Council

Dr. Dag Knutson, Sweden, chairman of the council, presented the annual report of the council to the general assembly, which approved the following council resolutions. 1. Sincere appreciation was extended to each member association that had voluntarily increased its subscription rate to one swiss franc per member per year. 2. The council appointments and tentative program for the World Medical Association committee on occupational health services were approved. 3. The International Council of Nurses was granted permission to use the name of the World Medical Association on its health report form. 4. National medical associations in countries that have not yet ratified the 1949 Red Cross Geneva Convention were urged to recommend to their governments that this ratification be facilitated. 5. The association endorsed a resolution adopted by the International Society of Clinical Pathologists recommending that a licensed doctor of medicine be the effective head of all laboratories devoted to the diagnosis, treatment and prophylaxis of human disease. 6. The first sentence of the International Code of Medical Ethics as adopted by the assembly in 1949 was amended to read "A doctor must always maintain the highest standards of professional conduct toward both the individual and society." The assembly devoted considerable time to discussing new projects that might be undertaken. These included assistance to underdeveloped countries and national medical associations, visiting teams of experts, and regional meetings.

Reports of Secretaries

Asia.—Dr. S. C. Sen, India, secretary for Asia, reported that the government of India was in the process of implementing its medical benefit system under social security and that the shortage of well-qualified doctors to participate in the plan was creating critical problems in medical education, with the government considering the use of doctors from homeopathic and indigenous education systems for servicing its program.

Australasia.—In the absence of Dr. J. G. Hunter, secretary for Australasia, Dr. L. R. Mallen, Australia, presented a statistical report on the Australian national health service, which is under the direction of the Minister of Health who consults the medical profession at the planning level and accepts the recommendations of the profession in implementing the program.

Europe.—Dr. Paul Cibrie, France, secretary for Europe, informed the assembly that the most urgent problem in his area was the establishment of the proper relationship between the medical profession and the social security organizations. A regional meeting is planned for the purpose of comparing the status of the doctors in the systems now operating in the various countries. He reported that the results of the first world conference on medical education could be seen slowly affecting the medical schools in Europe and, finally, that the European doctor suffered economic hardship from a lack of understanding of the excessive costs connected with medical equipment and professional expense, which are not deductible under current income tax assessments.

Latin America.—Dr. Hector Rodriguez, Chile, secretary for Latin America, stressed the urgent need in his area for assistance in developing well organized efficient medical associations competent to assist in raising the standards of medical care and medical education.

Medical Education Committee

Sir Lionel Whitby, chairman of the medical education committee, reported that progress was being made on the plans for the second world conference on medical education scheduled in the United States in 1959. Studies of the proceedings of the first conference from member associations are beginning to be received and are proving helpful in planning the next conference. The topic "Postgraduate Medical Education" was recommended as the theme of the second world conference and approved by the assembly. The World Health Organization and the International Association of Universities will assist in sponsoring the program.

Miscellaneous Business Committee

Dr. Otto Rasmussen, Denmark, chairman of the miscellaneous business committee, presented a progress report on its investigation of establishing a central repository for medical credentials. Investigation is now in progress to establish legality of various forms of the original record and means of identification of the individual with his record. Continued study is also being made of promoting closer cooperation between the medical profession and the daily press.

International Liaison Committee

Dr. Jean Maystre, Switzerland, chairman of the international liaison committee, reported that meetings had been held between representatives of the World Medical Association; International Committee of the Red Cross; International Committee on Military Medicine and Pharmacy; and the World Health Organization for the purpose of discussing international medical law. The problem is an extensive one that will require investigation in various fields and must be studied comprehensively. In addition the committee was continuing its activity to find and establish legal recognition of an emblem for the protection of civilian doctors and medical care services during war time. Dr. P. Glorieux, Belgium, a member of the international liaison committee, pointed out that the medical profession must assume its responsibility not only in educating the people of the world relative to the provisions on the 1949 Geneva Convention but also in establishing the rights, duties, and responsibilities of the medical profession under this convention.

Planning and Finance Committee

Dr. Otto Leuch, Switzerland, treasurer and chairman of the planning and finance committee, presented the two reports together as they were interdependent. The financial reports for 1954 were accepted; the subscription rate for 1956 was set at 60 swiss centimes per member of a member association; the 1956 budget was adopted; and the subscription rates for ensuing years were set as follows: 1957—80 swiss centimes per member of member association, and 1958—1 swiss franc per member of member association. The subscription rate ceiling was abolished by the assembly and each member association was granted the option of paying its subscription rate above a definite proportion to be established by council either from its own treasury or from funds contributed by its supporting committee. Reports from the World Medical Association supporting committees in Australia, Canada, Sweden, and the United States of America were heard.

Social Security Committee

Dr. Dag Knutson, Sweden, chairman of the general assembly committee on social security, presented the committee report on the meeting of the committee with representatives of the International Social Security Association for the purpose of clarifying the meaning of the 15 conclusions on relations between social security institutions and the medical profession. The group had only completed consideration of about half of these conclusions; further meetings would be set and the results of the discussions made available to member associations as soon as feasible.

The topic of the social security discussion was a realistic approach to the economic and political aspects of social security. Dr. Knutson presented a paper entitled "Social Security in the Field of Health Care—Its Background and Prospects" (see THE JOURNAL Nov. 5, 1955, p. 1054).

Liaison Officers Reports

WHO, ILO, and ISSA.—Dr. Jean Maystre, Switzerland, liaison officer to the World Health Organization, the International Labour Organization, and the International Social Security Association, discussed activities of these organizations of interest to the medical profession. He noted particularly the program in occupational health programs under ILO, an expert committee on medical care in WHO, and the current interest of ISSA in the economic and technical problems of medical social security.

UNESCO and CIOMS.—Dr. Paul Cibrie, France, liaison officer to UNESCO and CIOMS, informed the assembly of developments in the programs of these two organizations. Of special interest to the medical profession is the intensified program under UNESCO in the field of research in cell growth and children's mental health; CIOMS continues its program to assist all types of scientific and professional organizations to organize and co-ordinate conferences.

ICMMP.—Dr. P. Glorieux, Belgium, liaison officer to the International Committee on Military Medicine and Pharmacy, reported that this organization was recommending that the student doctors during their medical course be taught treatment of wounds caused by weapons—especially atomic weapons. In addition he recommended that the national medical associations immediately establish a program for the care of the civilian population in the event of war. Such a program would require cooperation with the government and military officials and a wide education of the civilian population. It is a program that must be fully established during peace time.

Member Association Resolutions

The ninth general assembly adopted the following resolutions submitted from member associations:

A medical education exchange program for well qualified young doctors (Ecuador);

Assistance in incorporating the Association's social security principles in the nations health legislation (Thailand);

Recommendation for the complete autonomy of medical organizations and their freedom from government interference (Cuba);

Reaffirmation of the 12 principles of social security of the World Medical Association (Cuba); and

Creation of local and national centers of the World Medical Association (Pakistan).

Unfinished Business

A progress report was received on the formation of a joint committee between the World Medical Association and the International Union of Medical Press for editing publications. The council was instructed to consider the advisability of increasing the registration fee at general assemblies for those who were not members of official delegations.

Scientific Session

Prof. Dr. J. Bock of Austria presided over the scientific session. The following papers were heard and discussed:

Viennese Medical Teaching of Interest in Foreign Countries
Prof. Dr. Leopold Schonbauer, director of the I University Surgical Clinic

Practical Problems in Rheumatology and Balneology
Prof. Dr. Karl Fellinger, director of the II University Medical Clinic

The Significance of Pathogenesis in Therapy
Prof. Dr. Ernst Lauda, director of the I University Medical Clinic

Medical Editors Conference

Prof. Dr. Karl Fellinger, Austria, executive editor of *Wiener Zeitschrift für innere Medizin* presided at the conference of medical editors. The luncheon for medical editors was sponsored by Mr. Milton Lasdon of the Nepera Chemical Company, Yonkers, N. Y. The papers heard and discussed were:

The Scientific Medical Press in Germany
Dr. med. Walter von Brunn, editor, *Deutsche medizinische Wochenschrift*

The Scientific Medical Press in Austria
Dr. Braunsteiner, editor, *Innere Medizin*

The Professional-Political Press in Germany
Dr. med. Ernst Fromm, editor, *Hamburger Arzteblatt*

The Professional Medical Press in Austria
Dr. E. Mazanek, executive editor, *Osterreichische Arztezeitung*

Medical Problems in the General Press in Germany
Mr. J. F. Volrad Deneke, representative of *the Central Press Agency of the German Medical Association*

Survey of the History of Medical Journalism in Austria
Dr. Gerhard Joseph, Cand. Phil.

Future Meetings

The assembly reaffirmed the selection of Havana, Cuba, as the venue of the 10th general assembly, Oct. 9-15, 1956. Turkey was selected as the venue of the 11th general assembly, September, 1957.

Election

President-Elect.—Dr. Augusto Fernandez Conde, Cuba, was unanimously elected president-elect for the year 1955-1956.

Council Vacancies.—The following persons were elected to council for the ensuing three years: Dr. L. A. Hulst (Netherlands); Dr. Dag Knutson (Sweden); Sir Lionel Whitby (Great Britain).

THE JOURNAL INDEX

The index to volume 159 of The Journal will appear in the issue for Jan. 14, 1956. Extra copies of the index will be available free of charge for those who wish to bind The Journal without mutilating the index number. Address requests to the Order Department, American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.

HONORED BY SCHOOL HEALTH GROUP

Fred V. Hein, Ph.D., consultant on health and fitness in the A. M. A. Bureau of Health Education, was honored recently when he was named president-elect of the American School Health Association. Dr. Hein, who holds degrees in health and physical education, was elected at the association's meeting in Kansas City. During the past year, he has served as vice-president in charge of the convention program. Before joining the A. M. A. staff 10 years ago, Dr. Hein served as supervisor of health and physical education in Oshkosh, Wis., public schools.

PROCEEDINGS OF THE BOSTON CLINICAL MEETING

ABSTRACT OF PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION AT THE CLINICAL MEETING IN BOSTON, NOV. 29-DEC. 2, 1955

(Continued from page 1663)

Report of Judicial Council

Dr. Homer L. Pearson, Chairman, presented the report of the Judicial Council (see THE JOURNAL, Oct. 29, 1955, pages 926-927), which was referred to the Reference Committee on Miscellaneous Business.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Frank H. Krusen, Chairman, Section on Physical Medicine, read the following report, which was adopted:

Report of the Judicial Council: Your reference committee considered the report of the Judicial Council and recommends the adoption of this report. Your committee desires to stress particularly the concept of the Council that "the principles of Medical Ethics are uniform in application and universal in their acceptance." Your committee desires to commend the Council's conclusion that state associations have the right to supervise the actions of their component societies and that if the right of appeal to the state association is granted it must be presumed that the state has the right to act on the appeal as its judgment dictates. The committee desires also to stress with the Council that matters of discipline are matters for local resolution.

Likewise, the committee desires to call to the attention of the House the conclusion of the Council that "the Principles of Medical Ethics of the Association proscribe as unethical all voluntarily associated activities with cultists."

Supplementary Report of Judicial Council

Dr. Homer L. Pearson, Chairman, presented the following supplementary report of the Judicial Council, which was referred to the Reference Committee on Miscellaneous Business.

Medical ethics are basically the same as ethics for any other homologous group of people working together in a common cause. They differ only in specialized particulars concerned with the service or activity which may be unique to a particular group and of little or no concern to another. Ethics are principles. They represent generations of experience by trial and error. As such, they are blueprints for the practices and behavior of the individuals who make up the group. They distill the best of the past, sustain the needs of the present, and point to the possibilities for improvement of the future. The Golden Rule is the solid core of all ethics.

Like the Golden Rule, the root principle of ethics cannot change. Interpretation and application inevitably vary to a greater or lesser degree from period to period in history. Variations come from special situations and changes of circumstance. Even when they occur after prolonged and careful consideration by adequate numbers representative of the group, they are dangerous. When forced by a powerful minority within or without a group or when selfishly motivated, variations may become extreme and basic principles distorted or forgotten altogether. In effect the old pattern is rendered completely unrecognizable, and a totally new one replaces it. All past experience is discarded, and the new plan is expected to bear its load without any certain foundations or supports. No wonder the work that results is often unsound and the structure erected collapses, destroying many innocents along with the foolish planners and builders. The only safe rule, apparently, is this: If a majority of the group agrees to change certain traditional interpretations and promulgate a new plan or rule of application in order to adapt to a real and permanent change in society or environment, it may and should very definitely do so, *provided* the alteration does not extend the structure dangerously beyond the supporting foundation of essential basic principles.

This is the age of ballyhoo. The so-called "allied commercial organizations" who make apparatus and the new "physik" have fallen under the spell and utter strange and often incomprehensible claims for their products. It's not surprising, then, that many physicians seriously question the wisdom of abiding by old-fashioned rules for the preservation of dignity and rigid honesty. These virtues wax and wane in popularity. Now they are at a rather low ebb throughout the world. We of the medical profession are told we should try to foster and certainly participate in a moral and religious rededication. If medicine wishes to provide its expected share in leadership at this important period in our history, we should be slow to change our present rules for individual conduct and behavior. Liberalization at this time may well be misinterpreted as capitulation. The advantages of more liberal interpretation on scores of thorny points are many, and they tempt us mightily. At times it seems we are engaged in a tough fight with one good arm tied behind us by our own foolish choice. We do have a most extraordinary birthright; however, if you look closely some of those immediate advantages which might be gained look a bit like pottage! Pottage may be very tempting to a hungry Esau, so let's be sure what we're trading for!

The Judicial Council views with some misgivings the trend in recent years to amend, to modify, to clarify, to reword, the Principles of Medical Ethics. These principles have been handed down to us through the years and are our birthright. Principles do not change; rules of conduct and laws may change, but principles do not. We pride ourselves in having such high ideals. The opening sentence of our principles of ethics reads: "The prime object of the medical profession is to render service to humanity; reward or financial gain is a subordinate consideration." That is a principle. It is not the desire of anyone to change it, but there are times when we wonder whether "reward or financial gain is a subordinate consideration." Birthrights are hard to come by, but their selling price is sometimes very cheap—sometimes the price is a meatless stew.

Recently this House by a large majority vote resolved to change our Principles of Medical Ethics so that it would not be unethical to own a drugstore or sell drugs and appliances "as long as there is no exploitation of the patient." Whether this is right or wrong is not for us to say. But the question arises: Where does profit end and exploitation begin? One of our principles reads: "The ethical physician, engaged in the practice of medicine, limits the sources of his income received from professional activities to services rendered the patient." Which is the undefiled heritage and which is the pottage?

There have been a number of resolutions introduced in this House concerning the division of fees. This Council was asked to determine how insurance payments could be made so that each man could get his pro-rated share. This we tried to do, but our principle is that the division of fees under any guise is unethical. Consider the matter of birthright. Consider the price of a meatless stew.

We hear a great deal these days about security. Every man must have a measure of security or he cannot survive. Let us be sure, then, just where our security lies—in the pot with the meatless stew or in a heritage undefiled. Does our security rest in the small advantages of these "extras" we have been considering or in a birthright of confidence? Does even financial advantage rest at last in the "extras" or in our heritage from honorable professional forebears? Can we deal lightly, can we afford to deal lightly, can we risk our credit to deal lightly with this bequest of confidence now reposed in us, not more as scientists than as men? Where is our security? "The prime object of the medical profession is to render service to humanity. . . ." Is this outmoded, empty phrasing or is it our birthright? "Reward or financial gain is a subordinate consideration." Is this "poppycock" or principle, a slogan or an integral part of our real security?

Invert these principles and what shall we gain—security or a mess of pottage? In the decisions of this House rests the case.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Frank H. Krusen, Chairman, Section on Physical Medicine, read the following report, which was adopted:

Supplementary Report of Judicial Council: Your reference committee studied with pleasure the beautifully worded supplementary report of the Judicial Council presented by its chairman, Dr. Homer L. Pearson, and it supports the viewpoints that "The prime object of the medical profession is to render service to humanity; reward or financial gain is a subordinate consideration"; and that "our principle is that the division of fees under any guise is unethical."

Your committee desires further to support Dr. Pearson's conclusion in discussion before the reference committee that "there are few instances in which it is necessary to change principles in a short period of time." The committee therefore favors a plan which would foster the procedure of requiring that all resolutions dealing with changes in the Principles of Medical Ethics shall be considered over a period between sessions of the House before final adoption. The Speaker of the House has given your committee the interpretation that a "session" is one concurrent group of meetings which may last one, two, three or more days. Thus, the House customarily holds two sessions each year; one an annual session and one an interim or clinical session.

Your committee recommends the adoption of the supplementary report of the Judicial Council.

Report of Council on Medical Education and Hospitals

Dr. H. G. Weiskotten, Chairman, presented the report of the Council on Medical Education and Hospitals (see THE JOURNAL, Oct. 29, 1955, pages 927-935), which was referred to the Reference Committee on Medical Education and Hospitals.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. George M. Fister, Chairman, Utah, submitted the following report, which was adopted:

Report of Council on Medical Education and Hospitals: In submitting its annual report, the Council on Medical Education and Hospitals has presented the various problems referred to it by the House of Delegates and the actions which it has taken in regard to them. The Council's report includes a historical background of the various actions taken by the House of Delegates relative to the internship since 1948, and presents the various steps the Council has taken prior to preparing its revision of the "Essentials of an Approved Internship." The Council presented a summary report to the House of Delegates which was published in THE JOURNAL of the American Medical Association on May 7, 1955, and subsequently included in the Handbook of the House of Delegates for the June, 1955, meeting in Atlantic City. In preparing the revision of the Essentials, the Council has taken full cognizance of the studies made by the Ad Hoc Committee on Internships of the House of Delegates and its recommendations, together with resolutions No. 51 and 55 adopted by the House of Delegates at Atlantic City concerning the educational standards of the internship and the nature of the internship. A complete statement summarizing the revision of the "Essentials of an Approved Internship," together with the full text of the revision is included in the present report of the Council as Appendix A.

Your reference committee understands that the Council also gave careful consideration to Resolution No. 82, submitted at the Atlantic City Meeting, in regard to the exclusion of obstetrics and gynecology from a straight internship. Your reference committee heard from the representatives of several obstetric and gynecologic groups requesting the reinstatement of straight internships in obstetrics and gynecology. After thorough review of the evidence presented, your reference committee concurs with the position of the Council that in the majority of instances the best preliminary preparation whether for specialty or general practice is a rotating internship. Your reference committee understands that in the past the Council has recognized straight internships in a number of the major clinical specialties as educationally sound, and therefore the Council has agreed to continue to recognize only a straight internship in medicine, surgery, pediatrics, and pathology. Your reference committee agrees with the Council's position relative to the continued approval of these internships.

Your reference committee has studied the revised "Essentials of an Approved Internship," as presented in Appendix A of the Council's report, including the proposal regarding straight internships, and recommends their adoption.

Your reference committee noted that the Council on Medical Education and Hospitals has indicated it is interested in Resolution No. 22 on general practice submitted to the House of Delegates at the Miami Meeting in 1954, and that in the current Educational Number of THE JOURNAL, issued on Oct. 8, 1955, it has included data concerning the activities of medical schools in this phase of medical education.

Further, your committee wishes to report that the Council on Medical Education and Hospitals has been cooperating with the Council on Medical Service in the studies being made in connection with Resolution No. 28 on the policy of medical practice by tax-supported medical schools, which was submitted to the House at its Miami session in December, 1954. It notes that the Council believes that important issues of this type are not solved by "ducking them," and that it is planning to devote a morning session of its next Annual Congress on Medical Education and Licensure on Feb. 13, 1956, to a symposium, cosponsored by the Council on Medical Service, to present facts and discussion in relation to problems of this area of concern to medical schools and to the profession. The members of the House of Delegates can expect a progress report in June, 1956.

In response to Resolution No. 14 on residency training in pediatrics, introduced at the Atlantic City Meeting in June, 1955, the Council is endeavoring to expedite the approval of residencies by the residency review committees as rapidly as is consistent with sound policy.

Your reference committee reports that the Council on Medical Education and Hospitals has prepared a statement on Resolution No. 45 on postgraduate medical education and pharmaceutical and drug houses, which was submitted to the House of Delegates at its June, 1955, meeting. This statement has recently been presented to the Board of Trustees for its consideration.

Your reference committee has reviewed the "Essentials of Approved Residencies and Fellowships," as presented in revision form in Appendix B of the Council's report and recommends their adoption.

Your reference committee has reviewed the "Essentials for Approved Examining Boards in the Medical Specialties," as presented in Appendix C and recommends their adoption.

Your reference committee has reviewed the "Essentials of an Acceptable School of Physical Therapy," as presented in Appendix D and recommends their adoption.

Your reference committee has reviewed the "Essentials of an Accredited School of X-Ray Technology," as presented in Appendix E and recommends their adoption.

Your reference committee recommends that in view of the possibility that there may be changes or readjustments in the names of some of the collaborating agencies cooperating in the preparation of the essentials that the Council's staff be given authority to make such editorial changes as may be necessary in keeping with the current status of these collaborating agencies.

Your reference committee has reviewed the activities of the numerous standing and special committees of the Council that have been assigned to specific topics and that have engaged individually or in collaboration with organizations concerned with certain areas of their activities. The reference committee has also noted the active participation of the Council on Medical Education and Hospitals with numerous other organizations and activities in areas closely related with or impinging on the area of medical education. Your reference committee wishes to commend the individuals and organizations represented on these committees for their cooperation with and support of American medicine.

Your reference committee calls to your attention the activities of the Council on Medical Education and Hospitals in the conduct of surveys of medical schools in conjunction with the Association of American Medical Colleges, that the University of California at Los Angeles completed its four year organizational program and graduated its first class last June, and that next June the University of Miami will graduate its first class. We wish to call attention to the new medical schools under development at the University of Florida, Seton Hall, and Yeshiva University, and the transition of the two year schools at Mississippi, Missouri, and West Virginia into full four year medical schools.

Your committee wishes to report with interest the development of five additional residency review committees since the Council's last report to the House, including a residency review committee for general practice. There are now 16 of these committees functioning in the important area of evaluating training programs at the residency level. Your reference committee wishes to commend the committees for the work they are doing in cooperation with the Council in elevating the standards of training at the residency level.

Your reference committee desires that your attention be called to the establishment of the Internship Review Committee in 1954, which is now a permanent Council committee and which consists of members representing the American Academy of General Practice, the Association of American Medical Colleges, the Federation of State Medical Boards of the United States, the American Hospital Association, and the Council on Medical Education and Hospitals.

The National Intern Matching Program appears to be progressing satisfactorily and is functioning better each year.

Your reference committee calls your attention to the continued activities of members of the Council's field staff in cooperation with the Joint Commission on Accreditation of Hospitals. Pending completion of the special study of the Joint Commission's activities, as authorized by the House, your reference committee notes that the Council will continue to carry out its responsibilities with the Joint Commission on the basis of its present commitments.

The Council should be commended for its very comprehensive report. We realize that its length is necessary to acquaint members of the House of Delgates with its various and complex activities. Your reference committee recommends the adoption of the report of the Council on Medical Education and Hospitals in its entirety.

Report of Council on Medical Service

Dr. Joseph D. McCarthy, Chairman, presented the report of the Council on Medical Service (see The Journal, Oct. 29, 1955, pages 935-945), which was referred to the Reference Committee on Insurance and Medical Service.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

The report of the reference committee on the report of the Council on Medical Service will be found on page 1649 of the Dec. 24, 1955, issue of The Journal.

Supplementary Reports of Council on Medical Service

Dr. Joseph D. McCarthy, Chairman, presented the following supplementary reports of the Council on Medical Service, nos. 1 and 2, which were referred to the Reference Committee on Insurance and Medical Service:

1. Resolution on Policy of Medical Practice by Tax-Supported Medical Schools

During the December, 1954, session of the House of Delegates, Dr. J. P. Culpepper Jr., introduced for the Mississippi delegation a resolution on medical practice by medical schools. This resolution reads as follows:

Whereas, It is imperative that a climate of free enterprise and ethical, private professional practice prevail toward the end of providing all Americans with the best possible medical care; and

Whereas, Corporate, and tax-subsidized practice manifestly defeats these ends of service; and

Whereas, There patently exists a barrier to these ends in the device of a tax-supported medical school that is engaged in the practice of medicine in which fees are levied and collected under a policy allowing this practice to employed physicians; now therefore be it

Resolved, That the American Medical Association reaffirm its unalterable opposition to socialized and state subsidized medicine regardless of the form that it may assume; and be it further

Resolved, That the House of Delegates of the American Medical Association is of the opinion that these principles should be considered by constituent and component medical societies together with all other facts pertinent to the local situation in all controversies arising in the employment of the medical faculty by state (tax) supported medical schools and be fully considered in effecting action within the framework of this policy.

The reference committee report adopted by the House was:

Resolution No. 28 on Policy on Medical Practice by Tax-Supported Medical Schools: Your reference committee, while reaffirming the portion of the resolution regarding the unalterable opposition to socialized medicine on the part of the American Medical Association, recommends that this resolution be referred, without approval or disapproval at this time, to the Council on Medical Service, which is currently undertaking a thorough study of the various aspects of this subject.

As pointed out in the reference committee report, the Council on Medical Service through its Committee on Medical and Related Facilities, had been concerned with the general problems arising from medical practice by full-time clinical faculty members of medical schools. For some time prior to the introduction of the Mississippi resolution, this Committee had been reviewing these problems and had invited personal representatives from two areas to appear before the committee.

With the introduction of the Mississippi resolution, the Council had the choice of instructing the committee to consider the resolution itself and make recommendations relative to it, or to continue its review of the general problems concerned with medical practice by full-time clinical faculty members, including the resolution as a part of the study. With full recognition of the feeling of urgency on the part of some constituent associations, the Council requested the Committee on Medical and Related Facilities to continue its study, expand it to all facets of the problem, and make a progress report at this time. The following is a progress report on the work of this Committee submitted to the House of Delegates for its information. A complete report is planned for presentation to the June, 1956, session in Chicago.

Method of Operation.—In developing this project the Council first discussed ways and means of obtaining information with representatives of the Council on Medical Education and Hospitals and the Association of American Medical Colleges. As the result of this conference an Advisory Committee was selected, consisting of representation from these two groups, the Council on Medical Service, and the American Hospital Association. This Advisory Committee has met twice, in February and November, 1955, and is presently composed of Drs. H. B. Mulholland, Charlottesville, Va., Chairman; D. Henry Poer, Atlanta, Ga.; John B. Youmans, Nashville, Tenn.; Herman G. Weiskotten, Skaneateles, N. Y.; Victor Johnson, Rochester, Minn.; Vernon Lippard, New Haven, Conn.; Robert Moore, Pittsburgh; James M. Faulkner, Cambridge, Mass.; Edwin L. Crosby, Chicago; Sarah H. Hardwicke, Chicago; and Madison B. Brown, Philadelphia. Staff personnel are Drs. Dean Smiley and E. L. Turner, and Mr. George W. Cooley, Chicago. With the advice and assistance of this committee the staffs of the four groups met on four occasions and prepared a questionnaire to be sent to the medical schools by the Liaison Committee of the Council on Medical Education and Hospitals and the Association of American Medical Colleges.

As a second step a special questionnaire was mailed to state medical associations and county medical societies in areas where medical schools are located.

As of November 1, all but five of the 75 four-year schools, had replied. Replies also had been received on 30 schools from state medical associations and on 31 schools from county medical societies. The results of the medical school questionnaire were compiled and tabulated by the staffs and have been reviewed by the Committee on Medical and Related Facilities and the Advisory Committee. The results of the medical society questionnaire are being processed but will not be completed until more replies have been received.

In reviewing this material the Committee has tried to keep in mind the views of private medical practitioners as well as the problems and views of the medical school deans. However, it was evident that something more than a written questionnaire would be necessary to lay a firm groundwork for proper evaluation of the situation.

As a third step, then, the Committee decided to hear first hand from some of those close to this problem. Since the primary areas of present controversy seemed to be Colorado, Georgia, Mississippi, Oregon, and Washington, the Committee on Medical and Related Facilities invited representatives of these state medical associations and the deans of their state medical schools to meet with the committee in Chicago. Two of the five deans and representatives from four state associations were able to attend. The other three deans wrote indicating their desire to cooperate but stating they were unable to attend. Those attending were:

David S. Pankratz, M.D., Dean, University of Mississippi School of Medicine
Samuel P. Newman, M.D., Denver, President, Colorado State Medical Society
R. C. McGahee, M.D., Augusta, First Vice-President, Medical Association of Georgia
J. W. Chambers, M.D., LaGrange, Chairman, Council, Medical Association of Georgia
S. Lamar Bailey, M.D., Kosciusko, President, Mississippi State Medical Association
H. H. McClanahan, Jr., M.D., Columbus, Committee on Medical Education, Mississippi State Medical Association
A. O. Pitman, M.D., Hillsboro, President, Oregon State Medical Society
Russell L. Baker, M.D., Portland, Chairman, Study Committee of the University of Oregon Medical School and Affiliated Institutions
G. N. Aagaard, M.D., Dean, University of Washington School of Medicine
Cyrus W. Anderson, M.D., Denver, President, Denver Medical Society
Tom Goodwin, M.D., Augusta, Speaker, House of Delegates, Medical Association of Georgia
Steve Brown, M.D., Augusta, Member of Richmond County Medical Society
George E. Twente, M.D., Jackson, Secretary, Mississippi State Medical Association
Mr. R. B. Kennedy, Jackson, Executive Secretary, Mississippi State Medical Association
E. G. Chuinard, M.D., Portland, President-Elect, Oregon State Medical Society
Mr. Clyde C. Foley, Portland, Executive Secretary, Oregon State Medical Society and Multnomah County Medical Society

In separate sessions, the Committee heard from each group and interrogated them on their various problems and viewpoints.

The fourth step taken by the Committee was a request to the Law Department to undertake a review of the state statutes, rulings, and court decisions relating to medical school organization and operation. This is in process and will be reported to the committee at its next meeting.

A fifth step, worked out in cooperation with the Council on Medical Education and Hospitals, is to be a symposium on the program of the Annual Congress on Medical Education and Licensure in February. At that time representatives of this committee, the deans of medical schools, and private practitioners will present in open meeting the results of the study, the views and problems of the deans, and the views of private practice. Dr. George Klump, Williamsport, Pa., will be moderator, with Drs. Robert L. Novy, Detroit, and Willard A. Wright, Williston, N. D., presenting the results of the medical school and medical society questionnaires; Joseph Hinsey, Ph.D., Director, New York Hospital, Cornell Medical Center, discussing the problems as the medical school sees them; Dr. D. Henry Poer, Atlanta, Georgia, giving the medical practitioner's viewpoints; and Mr. Edwin Holman, American Medical Association Law Department, reviewing some of the legal problems, followed by discussion from the audience.

These, then, are the steps taken to date by the committee. It may be that others will be indicated and, if so, they will be undertaken. In view of the projected symposium in February and the need to await more replies of the medical societies, the committee does not wish to present any conclusions or make any recommendations at this time. It does, however, wish to review briefly some of the areas with which the Committee is concerned in this study. These are:

1. The legal and statutory limitations on medical schools relating to this problem.
2. The relationship between private practice privileges for full-time clinical faculty and the Principles of Medical Ethics.
3. The extent of and effectiveness of liaison between medical schools and the local medical profession.
4. The necessity for using private patients, with all of the doctor-patient relationship factors that exist in private practice, to maintain the diversity in clinical material necessary to adequate teaching and research programs.
5. The extent of the use of fees collected from the private patients of full-time clinical faculty members (*a*) to supplement salaries of the clinical faculty so as to attract competent physicians as teachers; (*b*) to stimulate research by the clinical faculty, the teaching fellows, and the resident physicians; (*c*) to supplement general medical school operating funds; (*d*) to supplement financing of hospital operations; (*e*) to meet or underwrite the expenses incurred by the medical school or hospital in providing facilities and services for such private patients; and (*f*) to what extent is there need for such use of private practice fees relative to (*a*) (*b*) (*c*) (*d*) and (*e*).
6. The necessity for private practice privileges to serve private physicians throughout the state who request such special services or facilities as are available in the medical school or its hospital.
7. The necessity, because of such things as the expansion of voluntary health insurance and the requirements of welfare laws, to supplement the number of indigent (teaching) patients through the use of private patients.
8. The importance of maintaining a balance between private practice privileges, where such privileges are granted, and the need for clinical material, salary supplementation, etc., as well as the effectiveness of present methods used in maintaining such a balance, including (*a*) limitation to "patients referred by physicians"; (*b*) limitation as to "amount of income"; (*c*) limitation as to "time allowed"; and (*d*) limitation as to "number of patients."
9. The present use of such terms as "absolute full-time" and "geographic full-time" faculty and possible alternative titles.

Other areas may well come to the committee's attention as the medical society replies are reviewed. In addition the suggestions of individual physicians who have knowledge of or are concerned with this problem will be welcomed and given thorough consideration.

2. Resolution on Continuing Commission on Economic Policy

The Council on Medical Service has considered Resolution No. 54 (June, 1955), which was referred to it by the House of Delegates. The resolution proposed the establishment of a continuing Commission on Economic Policy. The Council has heard an able presentation by Dr. Lewis A. Alesen, California, concerning the intent of the resolution. While the Council is in sympathy with the philosophy expressed in Resolution No. 54, it is of the opinion that the Council does not have the authority or means, which includes budget, to activate a commission of such wide scope. With this in mind the Council recommends that *this resolution be submitted to the Board of Trustees for further consideration and action.*

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. Lewis A. Alesen, Chairman, California, read the following report, the first portion of which, dealing with supplementary report 1 of the Council on Medical Service, was adopted.

On motion duly made, seconded, and carried, supplementary report 2 of the Council on Medical Service was substituted for the second portion of the report of the reference committee, and was adopted.

Supplementary Report of Council on Medical Service No. 1: This is a progress report by the Council on the subject matter of the resolution introduced by Dr. J. P. Culpepper Jr. at the December, 1954, session of the House of Delegates. Considerable discussion ensued. *The introducer of the original resolution* emphasized that the issue involved is the tax-subsidized practice of medicine which is essentially a form of socialized medicine and a practice which if allowed to continue will ultimately result in complete socialization of the profession. The chairman of the Council, in explaining this supplementary report, emphasized the fact that this is a progress report and is not by any means a final recommendation. He further emphasized the fact that the Council on Medical Education and Hospitals and the Council on Medical Service have arranged a symposium on the program of the Annual Congress on Medical Education and Licensure to be held in Chicago in February, 1956, at which time the entire subject will be thoroughly explored by representatives of the Councils, the deans of medical schools, and private practitioners. The Council has experienced difficulty in receiving returns to its questionnaire sent to state and county medical associations on this subject. Your committee urges complete and prompt compliance.

Your committee commends the action of the Council in studying thoroughly each phase of this problem and recommends no action at this time.

Supplementary Report of the Council on Medical Service No. 2: This deals with Resolution No. 54 presented at the Atlantic City meeting in June, 1955, by the California delegation under the subject of "Continuing Commission on Economic Policy." The Council reports: "While the Council is in sympathy with the philosophy expressed in Resolution No. 54, it is of the opinion that the Council does not have the authority or means, which includes budget, to activate a commission of such wide scope. With this in mind the Council recommends that this resolution be submitted to the Board of Trustees for further consideration and action."

Because this resolution does not appear in the material in the hands of the delegates, it is quoted herewith:

> WHEREAS, Governmental encroachment in the field of medical care is proceeding at a rapidly accelerating rate notwithstanding carefully conceived and well-executed measures to prevent such encroachment; and
>
> WHEREAS, This continuous erosion of medical freedom will if unchecked seriously impair and ultimately degrade if not destroy the excellent medical care now available to the American people; and
>
> WHEREAS, It may be trite and repetitious, but nonetheless most important, to emphasize constantly that medical freedom is just one of the component parts of our traditional freedom inseparably blended with religious freedom, academic freedom, economic freedom, and social freedom, to mention just a few of our God-given rights so highly prized by our founding fathers; and
>
> WHEREAS, The effectiveness of the medical profession in protecting the health of the American people has been and is seriously weakened by the quaint, antediluvian and unrealistic ostrich-head-in-the-sand concept that medicine can continue to exist as an island of freedom in a sea of collectivism; now therefore be it
>
> *Resolved,* That there is hereby created by the House of Delegates and answerable to it a continuing Commission on Economic Policy; and be it further
>
> *Resolved,* That this commission shall consist of five members of the House appointed by the Speaker; the terms of the members of this commission shall ultimately be three years, arranged at the discretion of the Speaker in his original and subsequent appointments so that these terms shall be staggered; and be it further
>
> *Resolved,* That the purpose and function of this Commission on Economic Policy shall be to make a thorough study of the relationship of the American physician to the economic milieu in which he lives and, with the aid and advice of the Director of the Bureau of Medical Economic Research, to formulate and present for the consideration of this House a constructive economic platform for the American Medical Association.

The following report of the Reference Committee on Hygiene, Public Health, and Industrial Health was adopted by the House in June:

> *Resolution No. 54 on Continuing Commission on Economic Policy.*—Your reference committee feels that the attention of the Council on Medical Service should be drawn to this resolution since it has a commission devoted to the economics of medicine. Your committee feels that this is a well-drawn and exceptionally well-worded resolution and approves it in principle, but does not feel it is one for action by the House unless the Council on Medical Service so requests.

Your committee discussed the implications and ramifications of this proposal. The objective is to place the American Medical Association in a position of superior and unquestioned leadership in all phases of medical care by insisting that food, clothing, shelter, and every environmental factor to which our patients are subjected are of almost equal, if not entirely equal, importance with the more technical phases of diagnosis and treatment. Thus it becomes imperative that the doctor of medicine, individually and through his organizations, cultivate a thorough understanding of the economic process and take the initiative in suggesting constructive steps whereby there may be a constantly increasing amount and variety of goods and services available to every individual living within our economy at a price that individual can afford to pay and in an environment in which he is encouraged to produce to his utmost, to exchange the products of his brain and hands with his fellows, and to provide for independence of himself and his family in his later years. Your committee recommends that this resolution do pass.

Report of Council on Constitution and Bylaws

The report of the Council on Constitution and Bylaws (see THE JOURNAL, Oct. 29, 1955, pages 945-946) was referred by the Speaker to the Reference Committee on Amendments to the Constitution and Bylaws with the exception of the item on "Revision of Principles of Medical Ethics," which was referred to the Reference Committee on Miscellaneous Business.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BYLAWS

Dr. Jay J. Crane, Chairman, Section on Urology, submitted the following report, which was adopted:

Your reference committee on Amendments to the Constitution and Bylaws wishes to compliment the members of the Council on Constitution and Bylaws. Drs. Louis A. Buie, Chairman, Warren W. Furey, Floyd S. Winslow, Stanley H. Osborn, B. E. Pickett Sr., Edwin S. Hamilton, Elmer Hess, George F. Lull, Ernest B. Howard, E. Vincent Askey, and Louis M. Orr, on the excellent work they have performed over the period of years giving the American Medical Association a workable and intelligent yardstick governing its diversified activities. Your committee especially wishes to praise Dr. Louis A. Buie for his tireless devotion and study while serving as a member of the Judicial Council as well as chairman of the Council on Constitution and Bylaws.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Frank H. Krusen, Chairman, Section on Physical Medicine, presented the following report, which was adopted:

Revision of the Principles of Medical Ethics: Your reference committee reviewed that section of the report of the Council on Constitution and Bylaws which deals with the revision of the Principles of Medical Ethics. Your reference Committee recommends that this portion of the report of the Council be adopted.

Supplementary Report of Council on Constitution and Bylaws

Dr. B. E. Pickett Sr., Acting Chairman, read the following supplementary report, sections 1 and 5 of which were referred to the Reference Committee on Miscellaneous Business, and sections 2, 3, 4, 6, and 7 to the Reference Committee on Amendments to the Constitution and Bylaws:

This supplementary report pertains to items which are not included in the annual report of the Council on Constitution and Bylaws.

1. The Board of Trustees submitted to the Council for consideration and possible implementation a resolution made by the Commission on Medical Care Plans "that the Constitution and Bylaws be amended to provide that amendment to the Principles of Medical Ethics proposed at a session of the House of Delegates shall be held over until the next session before final action is taken, and that during this period the Judicial Council shall consider such proposed amendments and report to the House of Delegates at the session at which final action is taken."

Neither the Principles of Medical Ethics nor the Constitution and Bylaws provide for amendment to the Principles, but changes approved by a majority vote of the House of Delegates have long been recognized as valid. The members of the Council believe that changes should be made in the Principles only after most careful consideration, but they recognize that the House of Delegates should not be required to refer such changes to the Judicial Council only. The Council on Constitution and Bylaws therefore recommends that a new section be added, as a final section, to the Principles of Medical Ethics as follows:

> These Principles may be amended on approval of two-thirds of the members of the House of Delegates present and voting, provided an amendment shall not be acted on until the session following that on which it is introduced.

It is the opinion of the members of the Council on Constitution and Bylaws that the interval between the sessions of the House of Delegates will provide ample opportunity for anyone, including the Judicial Council, to give appropriate consideration to the proposed amendment.

2. The attention of the Council has been called to the fact that whereas Chapter I, Section 1, of the Bylaws provides for the exemption of Associate Members from the payment of American Medical Association membership dues, such provision is not contained in Chapter III which is devoted to the subject of dues. It is therefore recommended that Chapter III be amended by adding to Section 4 a new paragraph (F), as follows:

> (F) Associate members shall not be required to pay membership dues to the American Medical Association and shall not receive any publication of the American Medical Association except by subscription.

3. In June, 1955, the House of Delegates approved a report of the Reference Committee on Sections and Section Work which recommended that the name of the Section on Dermatology and Syphilology be changed to Section on Dermatology, and that the name of the Section on Physical Medicine and Rehabilitation be changed to Section on Physical Medicine. Therefore, the Council recommends that Chapter VII, Section 1(J) of the Bylaws be amended by deleting the words "and Syphilology," and that Chapter VII, Section 1(S) of the Bylaws be amended by deleting the words "and Rehabilitation."

4. At its meeting in June, 1955, the Council considered some matters referred to it by both the Board of Trustees and the Council on Scientific Assembly. These matters related to suggestions designed to clarify the provisions of the Bylaws governing the activities of the Scientific Assembly. Two of the suggestions were approved by this Council and subsequently by the Board of Trustees, and the following changes in the Bylaws are therefore recommended:

(A) Chapter VI, Section 1, of the Bylaws provides: "General meetings of the Scientific Assembly shall be arranged by the Board of Trustees. The general meetings shall be presided over by the President-Elect or in his absence or at his request by the Vice President or by a member of the Board of Trustees." Because of the fact that the Scientific Assembly, the Board of Trustees, and the House of Delegates all meet on the same day, it is becoming increasingly difficult for the President-Elect, Vice President or a member of the Board to preside at meetings of the Scientific Assembly. Therefore, the Council recommends that Chapter VI, Section 1, be amended by deleting the second sentence providing: "The general meetings shall be presided over by the President-Elect or in his absence or at his request by the Vice President or by a member of the Board of Trustees," and substituting therefor the sentence, "The Board of Trustees shall select the official who will preside at the general meetings of the Scientific Assembly," so that Chapter VI, Section 1, as amended will provide: "General meetings of the Scientific Assembly shall be arranged by the Board of Trustees. The Board of Trustees shall select the official who will preside at the general meetings of the Scientific Assembly."

(B) Chapter VII, Section 4, of the Bylaws provides: "The election of officers of the several sections, except the Section on Miscellaneous Topics, shall be the first order of business of the second meeting of the section at each Scientific Assembly. Only those may participate in an election who have indicated on registering the desire to affiliate with that section." Often, the second meeting of a section is a joint meeting with another section and confusion may result if an election of officers must be held at that time. Sections may make rules for the conduct of their proceedings and these rules may provide for an election of officers at some other time during the annual meeting if the first sentence of Chapter VII, Section 4 of the Bylaws were eliminated. Therefore, the Council recommends that Chapter VII, Section 4, be amended by deleting from lines 3 and 4 the words, "the first order of business of the second meeting of the section at each Scientific Assembly," and substituting therefor the words, "held during the annual meeting of the section," so that Chapter VII, Section 4, as amended will provide: "The election of officers of the several sections, except the Section on Miscellaneous Topics, shall be held during the annual meeting of the sections. Only those may participate in an election who have indicated on registering the desire to affiliate with that section."

5. In June of 1952, the House of Delegates assigned to the Council on Constitution and Bylaws the task of revising the Principles of Medical Ethics. The Council realized immediately the magnitude of the assignment, and recognized several factors which would delay its consummation. For example, a committee had been appointed by the Board of Trustees to study the osteopathic problem and later a committee was appointed by the Board to study the entire subject of ethical behavior of physicians. Obviously, the Council on Constitution and Bylaws could not complete its consideration of these subjects until the reports of these committees had become available. As you know, the reports of these committees were not made known until the last session of the House of Delegates in June of this year.

Another problem of obvious significance is the fact that, in all likelihood, there may be insufficient time during any session of the House to give appropriate consideration to a complete revision of the Principles. Therefore, the members of the Council decided to devote their attention to those principles which appeared to demand immediate consideration and to offer recommendations regarding them to the House of Delegates.

Accordingly, a Preamble was prepared which was approved by the House of Delegates in December, 1953, and during subsequent sessions of the House recommendations regarding revision of Sections 2, 4, 5, 6, 7 and 8 of Chapter I were approved.

The Council has now completed its study of the remainder of the Principles and is prepared to offer several recommendations. These proposals will require careful consideration by the members of the House of Delegates, and it is possible that sufficient time will not be available during this session to complete the task. The decision regarding this phase of the problem rests with the members of the House. Your attention is called to the fact that disagreement regarding any of the Council's proposals need not necessitate reconsideration of the entire revision.

In addition, the Council has devoted its attention to the following matters: (1) Several Principles appear to require revision, and recommendations regarding such revision have been prepared; (2) certain sections or portions of section have been found to be repetitious, and proposals regarding alteration or deletion have been prepared; (3) the members of the Council believe that Section 3 of Chapter VI is obsolete, and request that the members of the House consider the advisability of its deletion; (4) The sentiment expressed in some of the Principles which have not received attention appears to conflict with some of those which have been revised, and proposals have been prepared to correct these discrepancies; (5) An over-all editorial study has been made of the unrevised portion of the Principles, and proposals have been prepared which will correct wording without altering intent; (6) A study has been completed in which those principles which pertain to the domain of manners have been identified and the Council recommends that they be separated from the main body of the Principles of Medical Ethics. In order to accomplish this, it is proposed that the Principles be divided into two parts and that Part I be devoted to the Domain of Medical Ethics and that Part II be devoted to the Domain of Manners.

In their present form the Chapter headings are confusing and appear to serve no useful purpose. Therefore, it is recommended that they be abandoned and that a complete cross index be prepared which will provide for quick reference to subject matter and in general facilitate utilization of the Principles of Medical Ethics.

Following is the complete proposed revision of the Principles:

PROPOSED PRINCIPLES OF MEDICAL ETHICS AND PRECEPTS OF MANNERS

Preamble

These principles are intended to serve the physician as a guide to ethical conduct as he strives to accomplish his prime purpose of serving the common good and improving the health of mankind. They provide a sound basis for solution of many of the problems which arise in his relationship with patients, with other physicians, and with the public. They are not immutable laws to govern the physician, for the ethical practitioner needs no such laws; rather they are standards by which he may determine the propriety of his own conduct. Undoubtedly, interpretation of these principles by an appropriate authority will be required at times. As a rule, however, the physician who is capable, honest, decent, courteous, vigilant, and an observer of the Golden Rule, and who conducts his affairs in the light of his own conscientious interpretation of these principles, will find no difficulty in the discharge of his professional obligations.

Part One

THE DOMAIN OF MEDICAL ETHICS

Section 1.—The prime object of the medical profession is to render service to humanity; reward or financial gain is a subordinate consideration. Whoever chooses this profession assumes the obligation to conduct himself in accord with its ideals. A physician should be "an upright man, instructed in the art of healing." He must keep himself pure in character and be diligent and conscientious in caring for the sick. As was said by Hippocrates, "He should also be modest, sober, patient, prompt to do his whole duty without anxiety; pious without going so far as superstition, conducting himself with propriety in his profession and in all the actions of his life."

Section 2.—The avowed objective of the profession of medicine is the common good of mankind. Physicians faithful to the ancient tenets of this profession are ever cognizant of the fact that they are trustees of medical knowledge and skill and that they must dispense the benefits of their special attainments in medicine to all who need them. Physicians dedicate their lives to the alleviation of suffering, to the enhancement and prolongation of life, and to the destinies of humanity. They share whatever they have learned and whatever they may discover with their colleagues in every part of the globe. They recognize instinctively that the need for improvement of medical knowledge and skills is never at an end, and while they strive toward satisfaction of this need they are zealous in making available to physicians a good character who possess the desire and the ability to learn the aggregate of progress in medical education, research, and discoveries as they may exist at the time. They do not remain content to limit their activities to the care of the infirm, since they recognize also their useful rank among the vast concourse of citizens on whose shoulders the destiny of our nation rests. At the same time they will resist attempts to debase their services by diverting them to ignoble purposes. In their relationships with patients, with colleagues, and with the public, they maintain under God, as they have down the ages, the most inflexible standards of personal honor.

Section 3.—The ethical principles actuating and governing a group of clinic are exactly the same as those applicable to the individual. As a group or clinic is composed of individual physicians, each of whom, whether employer, employee or partner, is subject to the principles of ethics herein elaborated, the uniting into a business or professional organization does not relieve them either individually or as a group from the obligation they assume when entering the profession.

Section 4.—Solicitation of patients, directly or indirectly, by a physician, by groups of physicians or by institutions or organizations is unethical. This principle protects the public from the advertiser and salesman of medical care by establishing an easily discernible and generally recognized distinction between him and the ethical physician. Among unethical practices are included the not always obvious devices of furnishing or inspiring newspaper or magazine comments, concerning cases in which the physician or group or institution has been, or is, concerned. Self laudations defy the traditions and lower the moral standard of the medical profession; they are an infraction of good taste and are disapproved.

The most worthy and effective advertisement possible, even for a young physician, especially among his brother physicians, is the establishment of a well merited reputation for professional ability and fidelity. This cannot be forced, but must be the outcome of character and conduct. The publication or circulation of simple professional cards is approved in some localities but is disapproved in others. Disregard of local customs and offenses against recognized ideals are unethical.

Section 5.—Many people, literate and well educated, do not possess a special knowledge of medicine. Medical books and journals are not always easily accessible or readily understandable.

The medical profession considers it ethical for a physician to meet the request of a component or constituent medical society to write, act or speak for general readers or audiences. On the other hand, it may often happen that the representatives of popular news media are the first to perceive the adaptability of medical material for presentation to the public. In such a situation the physician may be asked to release to the public some information, exhibit, drawing or photograph. Refusal to release this material may be considered a refusal to perform a public service, yet compliance may bring the charge of self-seeking or solicitation.

An ethical physician may provide appropriate information regarding important medical and public health matters which have been discussed during open medical meetings or in technical papers which have been published, and he may reveal information regarding a patient's physical condition if the patient gives his permission, but he should seek the guidance of appropriate officials and designated spokesmen of component or constituent medical societies. Spokesmen should be empowered to give prompt and authoritative replies and a list should be issued which identifies them and discloses the manner in which they may be reached. These provisions are made with full knowledge that the primary responsibility of the physician is the welfare of his patient but proper observation of these ethical provisions by the physician concerned should protect him from any charge of self-aggrandizement.

Scientific articles written concerning hospitals, clinics or laboratories which portray clinical facts and techniques and which display appropriate illustrations may well have the commendable effect of inspiring public confidence in the procedure described. Articles should be prepared authoritatively and should utilize information supplied by the physician or physicians in charge with the sanction of appropriate associates.

When any sort of medical information is released to the public, the promise of radical cures or boasting of cures or of extraordinary skill or success is unethical.

An institution may use means, approved by the medical profession in its own locality, to inform the public of its address and the special class, if any, of patients accommodated.

Section 6.—The ethical physician, engaged in the practice of medicine, limits the sources of his income received from professional activities to services rendered the patient. Remuneration received for such services should be in the form and amount specifically announced to the patient at the time the service is rendered or in the form of a subsequent statement.

Unethical methods of inducement to refer patients are devices employed in a system of patronage and reward. They are practiced only by unethical physicians and often utilize deception and coercion. They may consist of the division of a fee collected by one physician ostensibly for services rendered by him and divided with the referring physician or physicians or of receiving the entire fee in alternate cases.

When patients are referred by one physician to another, it is unethical for either physician to offer or to receive any inducement other than the quality of professional services. Included among unethical inducements are split fees, rebates, "kickbacks," discounts, loans, favors, gifts, and emoluments with or without the knowledge of the patient. Fee splitting violates the patient's trust that his physician will not exploit his dependence upon him and invites physicians to place the desire for profit above the opportunity to render appropriate medical service.

Billing procedures which tend to induce physicians to split fees are unethical. Combined billing by physicians may jeopardize the doctor-patient relationship by limiting the opportunity for understanding of the financial arrangement between the patient and each physician. It may provide opportunity for excessive fees and may interfere with free choice of consultants, which is contrary to the highest standards of medical care.

Section 7.—A physician may patent surgical instruments, appliances, and medicines or copyright publications, methods, and procedures. The use of such patents or copyrights or the receipt of remuneration from them which retards or inhibits research or restricts the benefits derivable therefrom is unethical.

Section 8.—It is not unethical for a physician to prescribe or supply drugs, remedies, or appliances as long as there is no exploitation of the patient.

Section 9.—The acceptance of rebates on prescriptions and appliances or of commissions from those who aid in the care of patients is unethical.

Section 10.—The prescription or dispensing by a physician of secret medicines or other secret remedial agents, of which he does not know the composition, or the manufacture or promotion of their use is unethical.

Section 11.—An ethical physician will observe the laws regulating the practice of medicine and will not assist others to evade such laws.

Section 12.—A physician should not base his practice on an exclusive dogma or a sectarian system, for "sects are implacable despots; to accept their thralldom is to take away all liberty from one's action and thought."[*] A sectarian or cultist as applied to medicine is one who alleges to follow or in his practice follows a dogma, tenet or principle based on the authority of its promulgator to the exclusion of demonstration and scientific experience. All voluntary professional relationships with cultists are unethical.

Section 13.—Patience and delicacy should characterize the physician. Confidence entrusted by patients to a physician and deficiencies in the disposition or character of patients observed during medical attendance should never be revealed unless their revelations is required by law. Sometimes, however, a physician must determine whether his duty to society requires him to reveal information, obtained through confidences entrusted to him as a physician, to protect the health and welfare of the community. In such instance, the physician should act as he would desire another to act toward one of his own family in like circumstances. Before he determines his course, the physician should know the law of his community concerning privileged communications.

Section 14.—The physician should neither exaggerate nor minimize the gravity of a patient's condition. He should assure himself that the patient, his relatives or his responsible friends have such knowledge of the patient's condition as will serve the best interests of the patient and the family.

Section 15.—A physician is free to choose whom he will serve. He should, however, respond to any request for his assistance in an emergency or whenever temperate public opinion expects the service. Once having undertaken a case, the physician should not neglect the patient, nor should he withdraw from the case without giving notice to the patient, his relatives or his responsible friends in time to allow them to secure the services of another physician.

Section 16.—A physician is expected to uphold the dignity and honor of his vocation. In order that a physician may best serve his patients, he is expected to exalt the standards of his profession and to extend its sphere of usefulness.

Section 17.—For the advancement of his profession, a physician should affiliate with medical societies and contribute of his time, energy and means so that these societies may represent the ideals of the profession.

Section 18.—A physician should aid in safeguarding the profession against admittance to it of those who are deficient in moral character or education. He should expose, without fear or favor, incompetence or unethical conduct on the part of members of his profession. Such problems should be considered before appropriate committees.

Section 19.—In a case of serious illness, especially in doubtful or difficult conditions, the physician should request consultations.

Section 20.—In every consultation, the benefit to the patient is of first importance. All physicians interested in the case should be candid with the patient, a member of his family or a responsible friend.

Section 21.—All physicians concerned in consultations should be punctual. When, however, one or more of the consultants are unavoidably delayed, the one who arrives first should wait for the others for a reasonable time, after which the consultation should be considered postponed. When the consultant has come from a distance, or when for any other reason it will be difficult to meet the physician in charge at another time, or if the case is urgent, or it be the desire of the patient, his family or his responsible friends, the consultant may examine the patient and mail his written opinion, or see that it is delivered under seal to the physician in charge. Under these conditions, the consultant's conduct must be especially tactful; he must remember that he is framing an opinion without the aid of the physician who has observed the course of the disease.

Section 22.—When a patient is sent to a consultant and the physician in charge of the case cannot accompany the patient, the physician in charge should provide the consultant with a history of the case, together with the physician's opinion and outline of the treatment, or so much of this as may be of service to the consultant. As soon as possible after the consultant has seen the patient he should address the physician in charge and advise him of the results of the consultant's investigation.

Section 23.—A physician, in his relationship with a patient who is under the care of another physician, should not give hints relative to the nature and treatment of the patient's disorder; nor should a physician do anything to diminish the trust reposed by the patient in his own physician. In embarrassing situations, or whenever there seems to be a possibility of misunderstanding with a colleague, a physician should seek a personal interview with his fellow.

Section 24.—Whenever there arises between physicians a grave difference of opinion, or of interest, which cannot be promptly adjusted, the dispute should be referred for arbitration, preferably to an official body of a component society.

Section 25.—Poverty of a patient, and the obligation of physicians to attend one another and the dependent members of the families of one another, should command the gratuitous services of a physician. Institutions and organizations for mutual benefit, or for accident, sickness and life insurance, or for analogous purposes, should meet such costs as are covered by the contract under which the service is rendered.

Section 26.—A physician should not dispose of his services under conditions that make it impossible to render adequate service to his patients, except under circumstances in which the patients concerned might be deprived of immediately necessary care.

Section 27.—Contract practice as applied to medicine means the practice of medicine under an agreement between a physician or a group of physicians, as principals or agents, and a corporation, organization, political subdivision or individual, whereby partial or full medical services are provided for a group or class of individuals on the basis of a fee schedule, or for a salary or for a fixed rate per capita.

Contract practice *per se* is not unethical. Contract practice is unethical if it permits of features or conditions that are declared unethical in these Principles of Medical Ethics or if the contract or any of its provisions causes deterioration of the quality of the medical services rendered.

Section 28.—Free choice of physician is defined as that degree of freedom in choosing a physician which can be exercised under usual conditions of employment between patients and physicians. The interjection of a third party who has a valid interest, or who intervenes between the physician and the patient does not *per se* cause a contract to be unethical. A third party has a valid interest when, by law or volition, the third party assumes legal responsibility and provides for the cost of medical care and indemnity for occupational disability.

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[*] Nicon, father of Galen.

Section 29.—A physician should not dispose of his professional attainments or services to any hospital, lay body, organization, group or individual, by whatever name called, or however organized, under terms or conditions which permit exploitation of the services of the physician for the financial profit of the agency concerned. Such a procedure is beneath the dignity of professional practice and is harmful alike to the profession of medicine and the welfare of the people.

Section 30.—Physicians, as good citizens, possessed of special training, should advise concerning the health of the community wherein they dwell. They should bear their part in enforcing the laws of the community and in sustaining the institutions that advance the interests of humanity. They should cooperate especially with the proper authorities in the administration of sanitary laws and regulations.

Section 31.—Physicians, especially those engaged in public health work, should enlighten the public concerning quarantine regulations and measures for the prevention of epidemic and communicable diseases. At all times the physician should notify the constituted public health authorities of every case of communicable disease under his care, in accordance with the laws, rules, and regulations of the health authorities. When an epidemic prevails, a physician must continue his labors without regard to the risk to his own health.

Part Two

THE DOMAIN OF MANNERS

Section 1.—As a general rule, a physician should not attempt to treat members of his family or himself. Consequently, a physician should cheerfully and without recompense give his professional services to physicians or their dependents if they are in his vicinity. When a physician from a distance is called to advise another physician about his own illness or about that of one of his family dependents, and the physician to whom the service is rendered is in adequate financial circumstances, a compensation that will at least meet the traveling expenses of the visiting physician should be proffered him. When such a service entails a pecuniary loss to the visitor such loss may, in part at least, be provided for in the compensation offered.

Section 2.—When a physician or a member of his dependent family is seriously ill, he or his family should select a physician to take charge of the patient. The family may ask the physician in charge to consult other physicians.

Section 3.—After the physicians called in consultation have completed their investigations, they and the physician in charge should discuss the course to be followed. Statements should not be made nor should discussion take place in the presence of the patient, his family or his friends, unless all physicians concerned are present or have consented to the arrangement.

Section 4.—The physician in charge of the case is responsible for treatment of the patient. Consequently, he may prescribe for the patient at any time and is privileged to vary the treatment outlined and agreed on at a consultation whenever, in his opinion, such a change is warranted. However, after such a change, it is best to call another consultation; then the physician in charge should state his reasons for departing from the course decided at the previous conference. When an emergency occurs during the absence of the physician in charge, a consultant may assume authority until the arrival of the physician in charge, but his authority should not extend further without the consent of the physician in charge.

Section 5.—Should the physician in charge and a consultant be unable to agree in their view of a case, another consultant should be called or the differing consultant should withdraw. However, since the patient employed the consultant to obtain his opinion, he should be permitted to state it to the patient, his relative or his responsible friend, in the presence of the physician in charge.

Section 6.—When a physician has acted as consultant, he should not become the physician in charge except with the consent of the physician who was in charge at the time of the consultation or in response to the demands of the patient, his family or responsible friends.

Section 7.—When a physician makes social calls on another physician's patient he should avoid conversation about the patient's illness.

Section 8.—When a physician does succeed another physician in charge of a case, he should not disparage, by comment or insinuation, the one who preceded him. Such comment or insinuation tends to lower the confidence of the patient in the medical profession and so reacts against the patient, the profession and the critic.

Section 9.—When a physician is called in an emergency because the personal or family physician is not at hand, he should provide only for the patient's immediate need and should withdraw from the case on the arrival of the personal or family physician. However, he should first report to the personal or family physician the condition found and the treatment administered.

Section 10.—When several physicians have been summoned in a case of sudden illness or of accident, the first to arrive should be considered the physician in charge. However, as soon as is practicable, or on the arrival of the acknowledged personal or family physician, the first physician should withdraw. Should the patient, his family or his responsible friend wish some one other than he who has been in charge of the case, the patient or his representative should advise the personal or family physician of his desire. When, because of sudden illness or accident, a patient is taken to a hospital without the knowledge of the physician who is known to be the personal or family physician, the patient should be returned to the care of the personal or family physician as soon as is feasible.

Section 11.—When a physician is requested by a colleague to care for a patient during the colleague's temporary absence, or when, because of an emergency, a physician is asked to see a patient of a colleague, the physician should treat the patient in the same manner and with the same delicacy that he would wish used in similar circumstances if the patient were his responsibility. The patient should be returned to the care of the attending physician as soon as possible.

Section 12.—When a physician attends a woman who is in labor because the one who was engaged to attend her is absent, the physician summoned in the emergency should relinquish the patient to the first engaged, on his arrival. The one in attendance is entitled to compensation for the professional services he may have rendered.

Section 13.—Physicians should recognize and promote the practice of pharmacy as a profession and should encourage the cooperation of the pharmacist in education of the public concerning the practice of ethical and scientific medicine.

Part Three

MISCELLANEOUS

Section 1.—The House of Delegates may amend these Principles at any session on the approval of two-thirds of the members of the House of Delegates present and voting, provided the proposed amendment shall have been introduced at the preceding session.

6. Chapter XII, Sec. 4, of the Bylaws provides: "(G) Amendments to the Constitution and Bylaws to which shall be referred all proposed amendments to the Constitution or Bylaws;" The Council believes that matters relating to the Principles of Medical Ethics should also be referred to the Reference Committee on Amendments to the Constitution and Bylaws. It therefore recommends that Chapter XII, Sec. 4(G) be amended by deleting the semicolon after the word "Bylaws" and adding the words "and matters pertaining to the Principles of Medical Ethics of the American Medical Association."

7. The reference committees of the House of Delegates are provided for and enumerated in Chapter XII, Section 4 of the Bylaws. This enumeration is not in alphabetical order and the Council therefore recommends that Chapter XII, Section 4(A) through (M) be arranged in the following order:

(A) Amendments to the Constitution and Bylaws
(B) Board of Trustess and Secretary, Reports of
(C) Credentials
(D) Executive Session
(E) Hygiene, Public Health, and Industrial Health
(F) Insurance and Medical Service
(G) Legislation and Public Relations
(H) Medical Education and Hospitals
(I) Medical Military Affairs
(J) Miscellaneous Business
(K) Reports of Officers
(L) Rules and Order of Business
(M) Sections and Section Work

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Frank H. Krusen, Chairman, Section on Physical Medicine, submitted the following report, which was adopted:

Supplementary Report of Council on Constitution and Bylaws: Your reference committee in consultation with members of the Council on Constitution and Bylaws gave careful consideration to sections 1 and 5 of this supplementary report, and your reference committee recommends that these portions of the report be tabled for further consideration and action at the annual meeting of the House of Delegates to be held in Chicago in June, 1956.

Proposed Principles of Medical Ethics and Precepts of Manners of the American Medical Association: Your reference committee in consultation with members of the Council on Constitution and Bylaws and of the Judicial Council considered carefully the proposed Principles of Medical Ethics and Precepts of Manners of the American Medical Association. In discussion it became evident that there was need for wide distribution of these Principles and careful study of the proposed changes not only by this reference committee but also by all members of the House and in fact all members of the Association. It seemed desirable also that the two Councils, the Council on Constitution and Bylaws and the Judicial Council, should meet in joint session to consider these proposals. Your reference committee therefore recommends that these proposals be tabled for further consideration at the next annual session of the House to be held in Chicago in June, 1956. In the meantime, it is recommended that these proposals in their entirety be widely publicized and that consideration be given to publishing, in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and also in state medical journals, these proposed changes in the Principles. It is also recommended that consideration be given to the mailing of copies to each member of the Association. Finally, your reference committee recommends that prior to the meeting in Chicago next June the Council on Constitution and Bylaws and the Judicial Council meet in joint session to consider these proposed changes.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BYLAWS

Dr. Jay J. Crane, Chairman, Section on Urology, read the following report, which was adopted:

Your Reference Committee on Amendments to the Constitution and Bylaws has carefully reviewed assignments referred to it consisting of paragraphs 2, 3, 4A and B, 6, and 7 of the supplementary report of the Council on Constitution and Bylaws.

Paragraph 2 of the supplementary report proposes that a new paragraph (F) be added to Section 4, Chapter 3, of the Bylaws, which provides that Associate Members shall not be required to pay membership dues to the American Medical Association and shall not receive any publication of the American Medical Association except by subscription. Your reference committee recommends approval of this paragraph of the report.

The Council recommended in paragraph 3 that the name of the Section on Physical Medicine and Rehabilitation be changed to Section on Physical Medicine, and that the name of the Section on Dermatology and Syphilology be changed to Section on Dermatology. The Council recommends therefore that Chapter VII, Section 1 (J), of the Bylaws be amended by deleting the words "and Syphilology," and that Chapter VII, Section 1 (S), of the Bylaws be amended by deleting the words "and Rehabilitation." Your reference committee recommends approval of this paragraph of the report.

Paragraph 4 (A) of the Council's supplementary report related to suggestions designed to clarify the provisions of the Bylaws governing the activities of the Scientific Assembly. Two of these suggestions were approved by the Council on Constitution and Bylaws and the Board of Trustees. Chapter VI, Section 1, of the present Bylaws provides that the general meetings shall be presided over by the President-Elect or in his absence or at his request by the Vice President or by a member of the Board of Trustees. Because of the fact that the Scientific Assembly, the Board of Trustees, and the House of Delegates all meet on the same day it is becoming increasingly difficult for one of these officers to preside at these general meetings, it has been propsed and recommended by the Council that Chapter VI, Section 1, be amended so that the "general meetings of the Scientific Assembly shall be arranged by the Board of Trustees. The Board of Trustees shall select the official who will preside at the general meetings of the Scientific Assembly." Your reference committee recommends approval of this part of paragraph 4 of the report.

Paragraph 4 (B): Chapter VII, Section 4, of the present Bylaws provides: "The election of officers of the several sections, except the Section on Miscellaneous Topics, shall be the first order of business of the second meeting of the Section at each Scientific Assembly. Only those may participate in an election who have indicated on registering the desire to affiliate with that section." Often, the second meeting of a section is a joint meeting with another section and confusion may result if an election of officers must be held at that time. Sections may make rules for the conduct of their proceedings and these rules may provide for an election of officers at some other time during the annual meeting. If the first sentence of Chapter VII, Section 4, of the Bylaws were eliminated, the amended Bylaws will provide "The election of officers of the several sections, except the Section on Miscellaneous Topics, shall be held during the annual meeting of the Section." Your reference committee recommends approval of paragraph 4 (B) of the report.

Paragraph 6: Chapter XII, Section 4 (G), of the Bylaws reads, "Amendments to the Constitution and Bylaws to which shall be referred all proposed amendments to the Constitution or Bylaws." The Council believes that matters relating to the Principles of Medical Ethics should also be referred to the Reference Committee on Amendments to the Constitution and Bylaws and recommends that Chapter XII, Section 4 (G), be amended by deleting the semicolon after the word "Bylaws" and adding the words "and matters pertaining to the Principles of Medical Ethics of the American Medical Association." Your reference committee recommends approval of paragraph 6 of the Council's supplementary report.

Paragraph 7: The reference committees of the House of Delegates are provided for and enumerated in Chapter XII, Section 4, of the Bylaws. This enumeration is not in alphabetical order and the Council therefore recommends that Chapter XII, Section 4 (A) through (M) be rearranged in the following order:

(A) Amendments to the Constitution and Bylaws
(B) Board of Trustess and Secretary, Reports of
(C) Credentials
(D) Executive Session
(E) Hygiene, Public Health, and Industrial Health
(F) Insurance and Medical Service
(G) Legislation and Public Relations
(H) Medical Education and Hospitals
(I) Medical Military Affairs
(J) Miscellaneous Business
(K) Reports of Officers
(L) Rules and Order of Business
(M) Sections and Section Work

Your reference committee recommends approval of this portion of the Council's supplementary report.

Report of American Medical Education Foundation

Dr. Louis H. Bauer presented the report of the American Medical Education Foundation of which he is President, (see The Journal, Oct. 29, 1955, pages 946-947), which was referred to the Reference Committee on Medical Education and Hospitals.

Mr. Speaker and Members of the House: I am not going to read the report, but I would like to invite your attention to some items that I think should be stressed. There are several states that have given treasury gifts. We received one this morning from California, we received one last June from New Jersey, and we have also had treasury gifts from Oregon, Kansas, Virginia, Massachusetts, and Tennessee. I understand that Virginia, although it has made one gift this year, is going to make another. But what I think we fail to realize is that there are some state societies that have increased their dues, and the dues increase has been going to the support of the Foundation. I believe Illinois leads the parade. I think Illinois started that in 1952, and has been doing it every year since. Utah followed in 1954, and since then Nevada, California, and Idaho have followed suit.

I would not want to stand here and tell the state societies what they ought to do about increasing their dues for medical education, but I do think that every society ought to do its share, and I think it is hardly fair that the physicians of Illinois should contribute so large a share of the total amount. I think we owe a debt of gratitude to the Illinois State Medical Society and to those other state medical societies that are seeing that the physicians participate in this program, but I also think all of you should go back and see that your states do proportionately well. Whether you do it on a voluntary or a compulsory basis is your business, but let's see if we can do a little better than we have been doing in the past, because it is going to be tragic if we are unable to support our medical schools.

This spring there will be a Medical Education Week, and we are going to suggest to the state societies that they gear their campaigns so as to tie into this Medical Education Week. Sometimes it is easier to raise money in a short space of time than it is over a long period.

I also want to pay tribute to the Woman's Auxiliary. The Auxiliary raised about $80,000 this year, which might also put some of us to shame. It is also engaging in a campaign during Medical Education Week.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. George M. Fister, Chairman, Utah, presented the following report, which was adopted:

Your reference committee reviewed the report of the American Medical Education Foundation and was pleased at the spontaneous enthusiasm of various members of the Association who appeared before it recommending that the Association raise its dues designating that increase to the Foundation. Your reference committee wishes to commend the Foundation for its activities to date and because of the stimulation which developed in the hearing, your committee wishes to recommend that the Board of Trustees give consideration to a dues increase for its members for this and other purposes.

Report of Committee on Blood

Dr. Leonard W. Larson, Chairman, submitted the following report, which was referred to the Reference Committee on Miscellaneous Business:

The Committee on Blood has not met since the last meeting of the House of Delegates. You will recall that in the Committee's report to this House last June, it was announced that the Blood Foundation had been incorporated. Your attention is directed to the report of the Committee on Blood which was published in The Journal of the American Medical Association, Aug. 6, 1955, in which the history of the Committee was briefly reviewed, the principles relative to blood banking as adopted by this House were stated, the Red Cross Blood Program was reviewed, and reference was made to the establishment and bylaws of the Blood Foundation.

The name of the Blood Foundation has been changed to "Joint Blood Council, Inc." Dr. Frank Wilson, formerly director of the American Medical Association's Washington Office, has been employed as Executive Vice President of the Council, and the headquarter's office has been established in Washington, D. C.

It is the sincere hope of the members of the Committee on Blood that the purpose for which the Joint Blood Council was organized will be fulfilled. The Council will succeed if those who are concerned with blood banking in the United States will give it their whole hearted cooperation.

The purpose of the Joint Blood Council is as follows:

> To develop ways and means to make blood and its derivatives available to all persons in the United States; to stimulate and advise on areas of research in the collection, preservation, and use of blood and its derivatives; to collect, study and disseminate information on blood and blood derivatives; to establish minimal standards for voluntary accreditation of blood banks and to establish a means of inspection for accreditation; to coordinate existing systems and encourage and institute plans where necessary for the exchange of blood or blood credits between accredited banks on a state, regional and national basis; to encourage the public through appropriate means to donate blood for civilian and defense requirements and to assist in the establishment of uniform national publicity policies; to disseminate annually a list of blood banks accredited by this organization; to serve, on invitation, as a fact-finding and arbitration body in disputes arising from the collection and use of blood and its derivatives; to serve, on invitation, as an advisory group to federal and military agencies having to deal with blood and its derivatives.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Frank H. Krusen, Chairman, Section on Physical Medicine, read the following report, which was adopted:

Report of the Committee on Blood: Your reference committee has studied the report of the Committee on Blood and notes with approval the establishment of the Joint Blood Council, Inc., and the continued interest of our Committee on Blood in this entire program. Your reference committee recommends that this report be adopted.

Report of the Committee on Medical Practices

The Speaker called the attention of the House to the fact that action on the report of the Board of Trustees on the Report of the Committee on Medical Practices had been held over from the June, 1955, meeting (see The Journal, July 2, 1955, page 735) so that the members of the House might have opportunity to study the full report of the Committee. The Speaker declared that the report is hereby entered into the House, and referred it to the Reference Committee on Insurance and Medical Service.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

The report of the reference committee on the report of the Committee on Medical Practices will be found following supplementary report F of the Board of Trustees on page 1652 of the Dec. 24, 1955, issue of The Journal.

Introduction of Resolutions

The Speaker called for the introduction of resolutions as numbered.

No. 1. Resolution on Woman's Auxiliary Support of American Medical Education Foundation

Dr. James M. Kolb, for the Arkansas delegation, introduced the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

> Whereas, The American Medical Association established in 1950 the American Medical Education Foundation "to provide an instrument through which individual physicians, state and county medical societies, and other professional organizations can make contributions in support of medical education"; and
>
> Whereas, The Woman's Auxiliary to the American Medical Association has made contributions to this Foundation annually since 1951, showing an increasing interest in its success; therefore be it
>
> *Resolved,* That the House of Delegates of the American Medical Association requests the Woman's Auxiliary to continue its efforts in raising funds for medical education by urging each of its constituent auxiliaries to participate actively in financial support of the American Medical Education Foundation.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Frank H. Krusen, Chairman, Section on Physical Medicine, presented the following report, which was adopted unanimously.

Resolution No. 1 on Woman's Auxiliary Support of A. M. E. F.: Your reference committee fully supports this resolution that the House request the Woman's Auxiliary to continue efforts to raise funds for medical education by urging each of its constituent auxiliaries to participate actively in financial support of the American Medical Education Foundation. In doing so your reference committee wishes especially to recommend that the House extend to the Woman's Auxiliary an expression of its sincere appreciation of the magnificent contributions already made by the Woman's Auxiliary in support of medical education. Your reference committee recommends that this resolution be adopted.

No. 2. Resolutions on Distribution of Salk Poliomyelitis Vaccine

Dr. Milford O. Rouse, for the Texas delegation, presented the following resolutions, which were referred to the Reference Committee on Hygiene, Public Health, and Industrial Health:

> Whereas, Dr. Jonas Salk has accomplished for the National Foundation for Infantile Paralysis one of its major purposes, namely, the development to a commercial state of an apparently effective vaccine against poliomyelitis; and

Whereas, Further research by him and other investigators gives promise of improvement of poliomyelitis immunization with consequent continued need of supporting funds; and

Whereas, The National Foundation for Infantile Paralysis stated its intention to be out of the business of purchasing and supplying poliomyelitis vaccine by Oct. 1, 1955; now therefore be it

Resolved, That we, the members of the American Medical Association, do heartily approve the publicly expressed policy of the National Foundation for Infantile Paralysis to return to, and maintain, its original policy of devoting its funds to proper research and to assistance in the actual care of patients disabled by poliomyelitis; and be it further

Resolved, That the House of Delegates of the American Medical Association go on record as recommending that the further purchase and distribution of Salk vaccine be carried on by the presently available commercial avenues used for other immunizing agents.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

Dr. L. Howard Schriver, Chairman, Ohio, read the following report, which was adopted:

Resolution No. 2 on Distribution of Salk Poliomyelitis Vaccine and Resolution No. 13 on Distribution of Salk Vaccine: Your committee considered Resolutions No. 2 and No. 13 jointly as they both contained parallel subject matter. These resolutions were provocative of much discussion contributed by many persons. After prolonged consideration your committee wishes to present a substitute resolution consisting of Resolution No. 2 with the addition of the following final paragraph: "and be it further *Resolved,* That all vaccines, once proven, should enter the usual channels of distribution."

No. 3. Resolutions on Amendment of Constitution of United States Regarding Electoral College

Dr. Milford O. Rouse, on behalf of the Texas delegation, introduced the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

PREAMBLE

In the election of the President of the United States the form of representation of the states has long been violently distorted by use of the general ticket in each state's election of its presidential electors—election of party slates, en bloc, by simple statewide pluralities. This distortion of the form of representation has put a high premium on small pluralities in large pivotal states where organized pressure groups all too often hold the balance of political power in presidential elections, giving these groups an influence on the election of a President which they do not have in the election or the Congress. The presidential electors were designed to be counterparts in number of each state's representation in the Congress in order to give each state the same voice in the election of a President that it has in Congress. In view of these considerations, now therefore be it

Resolved, That the Constitution of the United States be amended to provide for the choosing of presidential electors in the same manner in which members of the Congress are elected; and be it further

Resolved, That copies of this resolution be sent to the members of the Congress of the United States and to the members of the legislatures of the several states.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Paul A. Davis, Chairman, Ohio, read the following report, which was adopted:

Resolution No. 3 on Amendment to Constitution of the United States Regarding Electoral College: Your committee, while in sympathy with the purpose of this resolution, feels, after careful consideration, that this is a matter for individual decision by each citizen. It therefore commends thorough study of the proposal to physicians as citizens. Your committee recommends, therefore, that no other action on the resolution be taken at this time.

No. 4. Resolution on Doctor-Draft Law

Dr. Milford O. Rouse, for the Texas delegation, submitted the following resolution, which was referred to the Reference Committee on Medical Military Affairs:

Whereas, In spite of the feeling of the medical profession that no further drafting of physicians as a class into the military services was justifiable on the basis of exigency, the President and Congress did extend this legislation for two years; and

Whereas, Such legislation is strictly class legislation and therefore discriminatory and unconstitutional; now therefore be it

Resolved, That the Board of Trustees of the American Medical Association be requested and empowered to prepare and financially support a test case of the present Doctor-Draft Law through the federal courts to and including the Supreme Court of the United States for the purpose of securing a direct, final, and clear judicial opinion in the constitutionality of the said Doctor-Draft Law.

REPORT OF REFERENCE COMMITTEE ON MEDICAL MILITARY AFFAIRS

Dr. Charles H. Richardson Sr., Chairman, Georgia, read the following report, which was adopted:

Your committee would now like to report on Resolution No. 4 proposed by the Texas Delegation. In essence, this resolution proposes an American Medical Association-sponsored test of the legality of the Doctor-Draft Law. By way of introduction it is to be stated that since the passage of this special draft act in September, 1950, with subsequent extensions, it has plagued the medical profession. It is openly conceded that this is discriminatory legislation and disliked by legislators, government administrators, and physicians in and out of uniform. Your committee is reminded that this law was extended on June 30, 1955, for two additional years and will continue in force until July 1, 1957.

To support Resolution No. 4 would present innumerable and complex legal and administrative problems for the American Medical Association. Legal advice is to the effect that the Association cannot be the plaintiff but that a civilian physician would have to be drafted as a private into the Armed Forces under the current Doctor-Draft Act who would be willing to become the plaintiff. Furthermore, to process such a case through the courts would be most time-consuming and expensive.

Your committee is of the opinion that such a test case has been tried and a decision rendered. Reference is made to the test case *Bertelsen* v. *Cooney,* which was heard in a federal district court of the fifth circuit. The court ruled that the constitutional war powers are plenary and that Congress has unlimited power to conscript on its own terms without review by the courts. On appeal before the Fifth Circuit Court of Appeals the decision was affirmed. The court stated, "whether the legislation is wise or unwise, fair or unfair, necessary or unnecessary, is for legislative not judicial determination. Congress has the power to raise and support armies. It is not for the judiciary to review how the forces shall be raised nor of what elements they shall be composed. It is for Congress to say where, who and to what extent, and how they shall be selected." The United States Supreme Court, upon appeal, refused to accept jurisdiction, in legal effect sustaining the opinion of the lower court.

Your committee believes that the most constructive action to be taken would be strong support of the career incentive program for medical officers and that no useful purpose would be served by further testing the legality of the Doctor-Draft Act. Your committee, therefore, recommends that this resolution be not adopted.

No. 5. Resolutions on Sears Roebuck Foundation Plan for Medical Practice Units

Dr. Milford O. Rouse, for the Texas delegation, introduced the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

Whereas, The Sears Roebuck Foundation in cooperation with the American Medical Association has established a new plan to assist in establishing medical practice units in areas where additional medical care is needed and for physicians who are unable to secure bankable commercial loans elsewhere; and

Whereas, The medical profession for many years has directed much research and planning aimed at providing the best possible distribution of medical facilities throughout the United States; and

Whereas, One of the obstacles encountered in the establishment of practices in small cities and towns or rural areas has often been the physician's inability to finance the increasing expense of his office and equipment; and

Whereas, The Sears Roebuck Foundation in providing an interest-free loan fund properly administered provides one avenue to meet this problem of financing; and

Whereas, The Sears Roebuck Foundation has sought and received the assistance of medical leadership in designating areas of need in determining proper loans; and

WHEREAS, The House of Delegates of the American Medical Association desires to commend Sears Roebuck on the splendid cooperation offered the medical profession through the planning and establishment of this Foundation and this special project; and

WHEREAS, It is the belief that the example set by Sears Roebuck Foundation is a worthwhile pattern which other business and industrial leaders may follow in assisting in an over-all effort to provide the best medical care in the world to the entire population of our nation; now therefore be it

Resolved, That the House of Delegates of the American Medical Association go on record as commending this fine business organization for thoughtfulness and foresight in creating and sponsoring this worthwhile project; and be it further

Resolved, That copies of this resolution be sent to the proper officials of Sears Roebuck and the Sears Roebuck Foundation.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Frank H. Krusen, Chairman, Section on Physical Medicine, read the following report, which was adopted:

Resolution No. 5 on the Sears Roebuck Foundation Plan for Medical Practice Units: Your reference committee concurs in this resolution that the House of Delegates of the American Medical Association go on record as commending this fine business organization for thoughtfulness and foresight in sponsoring this worthwhile project and that copies of this resolution be sent to proper officials of the Sears Roebuck Company and the Sears Roebuck Foundation. All of the testimony before the reference committee commended in glowing terms this fine project. Your reference committee recommends that this resolution be adopted.

No. 6. Resolution on Changing Name of Section on Preventive and Industrial Medicine and Public Health

Dr. Rutherford T. Johnstone, Section on Preventive and Industrial Medicine and Public Health, introduced on behalf of the section, the following resolution, which was referred to the Reference Committee on Sections and Section Work:

WHEREAS, The name of the Section on Preventive and Industrial Medicine and Public Health is long and unwieldy; and

WHEREAS, The specialty of preventive medicine is now recognized to include the disciplines of public health, aviation medicine, and occupational medicine; and

WHEREAS, The specialty board of preventive medicine approved by the Council on Medical Education and Hospitals now certifies and recognizes specialists in these three fields; and

WHEREAS, The prevention of disease is the fundamental and essential philosophy of these groups; now therefore be it

Resolved, That the Section on Preventive and Industrial Medicine and Public Health respectfully request that the House of Delegates of the American Medical Association change the name of the Section on Preventive and Industrial Medicine and Public Health to Section on Preventive Medicine.

REPORT OF REFERENCE COMMITTEE ON SECTIONS AND SECTION WORK

Dr. Gilson Colby Engel, Chairman, Pennsylvania, submitted the following report, which was adopted:

Resolution No. 6: The "Resolved" states as follows: "That the Section on Preventive and Industrial Medicine and Public Health respectfully request that the House of Delegates of the American Medical Association change the name of the Section on Preventive and Industrial Medicine and Public Health to Section on Preventive Medicine." Dr. Johnstone appeared before your reference committee and assured it that all groups were in accord on this change and stated the factual reasons for recommending this change. Your reference committee recommends to the House of Delegates changing of the name of the Section on Preventive and Industrial Medicine and Public Health to Section on Preventive Medicine.

No. 7. Resolution on Amendment of Principles of Medical Ethics, Chapter IV, Section 1

Dr. Lawrence R. Dame, Massachusetts, for Dr. Earle M. Chapman, Massachusetts, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, Some physicians have abused the Principles of Medical Ethics by claiming insurance money for the care of their own families; and

WHEREAS, Chapter IV, Section 1, of the Principles of Medical Ethics of the American Medical Association reads: "As a general rule, a physician should not attempt to treat members of his family or himself. Consequently, a physician should cheerfully and without recompense give his professional services to physicians or their dependents if they are in his vicinity;" and

WHEREAS, Physicians are called on to care for physicians or their families who may come from the vicinity or from a distance for consultation, and as insurance to pay for professional medical services may be available as recompense; therefore be it

Resolved, To amend Chapter IV, Section 1, of the Principles of Medical Ethics to delete the words "consequently," "and without recompense," and "if they are in his vicinity" so that the section shall read as follows:

> As a general rule, a physician should not attempt to treat members of his family or himself nor shall he receive financial recompense for such treatment if rendered. A physician should cheerfully give his professional services to other physicians or their dependents.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Frank H. Krusen, Chairman, Section on Physical Medicine, read the following report, which, after discussion and amendment, was adopted:

Resolution No. 7 on Amendment of Principles of Medical Ethics, Chapter IV, Section 1: Your reference committee supports this resolution in principle but recommends that no action be taken on it, since we have been assured by the chairman of the Judicial Council that this resolution is already fully covered in the Principles of Medical Ethics as already stated and that the Judicial Council has gone on record as stating that it is not unethical for a physician to accept payment from an insurance company for services rendered to a medical colleague or one of his dependents.

Nos. 8 and 9

Dr. Charles M. Hamilton, for the Tennessee delegation, introduced the following two resolutions, Nos. 8 and 9, which were referred to the Reference Committee on Legislation and Public Relations:

No. 8. Resolutions on Social Security and the Youth of the Nation

WHEREAS, The future liability of social security is expanding by leaps and bounds; and

WHEREAS, The taxes to support this measure are wholly inadequate; and

WHEREAS, The burden of this obligation will fall on the shoulders of the next generation; and

WHEREAS, The youth of the nation is unaware of what is being fostered upon them; therefore be it

Resolved, That the American Medical Association insist that the various states promote an educational campaign to inform school children by furnishing literature to be read, by speeches in schools, or possibly by offering awards for the best paper read in high schools on social security; and be it further

Resolved, That the American Medical Association furnish material for such a program; and be it further

Resolved, That assistance be elicited from Chambers of Commerce and other civic organizations.

No. 9. Resolutions on Exploitation of Social Security

WHEREAS, The gradual expansion of social security, in both benefits and those eligible to receive them, has brought upon the citizens of the United States an obligation greater than the national debt; and

WHEREAS, The taxes collected to meet this liability are only a trivial token gesture; and

WHEREAS, Social security is being exploited politically by both parties; therefore be it

Resolved, That the American Medical Association recommend to the Congress that the social security program be put on a sound actuarial basis; and be it further

Resolved, That the entire framework of social security be completely separated from the general tax fund.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

The report of the reference committee on Resolutions No. 8 and 9 will be found following supplementary report F of the Board of Trustees on page 1650 of the Dec. 24, 1955, issue of THE JOURNAL.

No. 10. Formulation of Contract to be Offered by Medical Society Sponsored Voluntary Health Insurance Plans

Dr. Raymond M. McKeown, on behalf of the Oregon State Medical Society, presented the following resolution, which was referred to the Reference Committee on Insurance and Medical Service:

Whereas, The American Medical Association is deeply interested in the sound development of all forms of voluntary health insurance; and

Whereas, The Association is especially interested in the healthy growth of the voluntary health insurance plans sponsored by its constituent and component medical societies; and

Whereas, The medical society sponsored plans are and should continue to be independent and free to offer contracts to meet the particular needs of their respective localities; and

Whereas, Each medical society sponsored plan nevertheless needs to be *in a position to participate with other medical society sponsored* plans in offering organizations engaged in interstate operations a contract containing uniform minimum standard provisions; and

Whereas, The Council on Medical Service of the Association is equipped to develop such a contract in collaboration with representatives of the medical society plans; therefore be it

Resolved, That the Council on Medical Service be authorized and directed to arrange, at the earliest practicable date, a national meeting to which all the medical society sponsored plans shall be invited to send representatives to collaborate in formulating such a contract and to consider such other matters of mutual concern as the Council and the participating medical society sponsored plans may jointly deem desirable.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. Lewis A. Alesen, Chairman, California, submitted the following report, which was adopted:

Resolution No. 10 on Formulation of Contract to be Offered by Medical Society Sponsored Voluntary Health Insurance Plans: Your committee listened to considerable discussion on this resolution. It was the consensus of those speaking that there is indeed a distinct need for a greater degree of uniformity and for some minimum standard provisions by medical society sponsored voluntary health insurance plans. On the other hand, because of geographic, legal, and other considerations, there are many obstacles in the way of this goal. In addition, your committee believes that this is appropriately a task to be performed by the plans themselves, and particularly the Blue Shield Commission, and is not properly in the province of the American Medical Association. It is the understanding of your committee that at this time several agencies are making studies looking toward some solution for this obviously perplexing problem. Your committee, therefore, recommends that this resolution be not adopted.

No. 11. Resolutions on Creation of a Medical Practices Committee

Dr. Lester D. Bibler, Section on General Practice, introduced the following resolutions, which were referred to the Reference Committee on Insurance and Medical Service:

Whereas, A special committee of the American Medical Association whose report was given to the House of Delegates in June, 1955, has completed an intensive study of the basic causes leading to certain unethical practices and to unfavorable publicity; and

Whereas, The findings and recommendations of this committee should be studied and put into practical operation by the American Medical Association; therefore be it

Resolved, That a Medical Practices Committee be created by the American Medical Association to begin study of the relative value of diagnostic, medical, and surgical services for the whole of the practice of medicine and surgery; and be it further

Resolved, That this committee assist the Public Relations Department of the American Medical Association to present a program of public education on the value of diagnostic and medical care; and be it further

Resolved, That this committee use its full influence to discourage any arbitrary restrictions by hospitals against general practitioners as a group or as individuals; and be it further

Resolved, That this committee reaffirm and enforce action of this House of Delegates in 1947 "that any rule barring a physician from staff privileges because he does not hold board certification or membership in a specialty society is absolutely against the American Medical Association policy."

No. 12. Resolutions on Creation of Permanent Committee on Medical Practices

Dr. Wendell C. Stover, for the Indiana delegation, introduced the following resolutions, which also were referred to the Reference Committee on Insurance and Medical Service:

Whereas, The report of the interim Committee on Medical Practices was presented to this House of Delegates in June, 1955, in which the committee has completed its intensive study of the basic causes leading to certain unethical practices and to unfavorable publicity; and

Whereas, The findings and recommendations of this committee deserve the intensive study by the physicians of this country and by the American Medical Association, which should put said recommendations into practical operation; now therefore be it

Resolved, That a permanent Committee on Medical Practices be created in the American Medical Association to conduct a continuing study of the relative value of diagnostic, medical, and surgical services and to report its findings and recommendations to this House in the same manner as is now followed by other committees and councils of the Association; and be it further

Resolved, That this committee cooperate in every way and assist the Public Relations Department of the American Medical Association to present a program of public education designed to bring about a better understanding of all fields of medical practices; and be it further

Resolved, That this committee use its full influence to discourage any arbitrary restrictions by hospitals against general practitioners as a group or as individuals.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

The report of the reference committee on Resolutions No. 11 and 12 will be found following supplementary report F of the Board of Trustees on page 1652 of the Dec. 24, 1955, issue of The Journal.

No. 13. Resolutions on Distribution of Salk Vaccine

Dr. Eli S. Jones, on behalf of the Indiana delegation, presented the following resolutions, which were referred to the Reference Committee on Hygiene, Public Health, and Industrial Health:

Whereas, The physicians of the United States, through their local medical societies voluntarily cooperated with the National Foundation for Infantile Paralysis in the nationwide tests of the efficiency of the Salk polio vaccine; and

Whereas, The National Foundation for Infantile Paralysis then used funds to purchase vaccine for free inoculation of all first and second grade *children without consideration of parental ability to pay; and*

Whereas, The United States government has appropriated money to further the free inoculation of individuals without regard for financial resources of such individuals to provide such services for themselves at their own expense; and

Whereas, Both the National Foundation and the government programs set an unnecessary and needless precedent; and

Whereas, Such activities entered upon by voluntary health organizations or governmental units on a universal basis are in direct violation of the essential principles of free enterprise and sound medical practices; now therefore be it

Resolved, That the American Medical Association condemns the practice of voluntary health organizations and the government supplying vaccine free of charge to the public of this nation and insist upon immediate termination of such practices except the practice of providing this benefit to individuals of this nation financially unable to pay for such services; and be it further

Resolved, That the Board of Trustees be empowered and instructed to voice opposition in behalf of the physicians of the United States to these and any subsequent programs violating the principles of free enterprise and sound medical practices, calling attention to the willingness of the physicians of this country to cooperate in seeing that every deserving person in this nation will receive the benefits of preventive medicine if the honest need is made known.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

The report of the reference committee on Resolution No. 13 will be found following Resolution No. 2 on page 1759 of this issue of The Journal.

No. 14

The Speaker announced that Resolution No. 14 had been withdrawn.

No. 15. Resolutions on Establishment of Cancer Commissions by State Medical Societies

Dr. George A. Unfug, Colorado, introduced the following resolutions, which were referred to the Reference Committee on Hygiene, Public Health, and Industrial Health:

WHEREAS, The many claims for new methods of diagnosing and treating cancer that are not presented through the usual medical channels of communication or supported by adequate scientific and clinical evidence of value have created grave problems for practicing physicians and for those agencies and leaders responsible for public health and for advising the public; and

WHEREAS, The American Association for Cancer Research, the American Cancer Society, the American Medical Association, the Damon Runyon Memorial Fund for Cancer Research, the Food and Drug Administration, and the National Cancer Institute, because of concern over this situation, sought aid from the National Academy of Sciences which established the Committee on Cancer Diagnosis and Therapy within the National Research Council to study this problem; and

WHEREAS, The studies of this committee over a period of four and one-half years have led to the conclusion that since such claims gain their original public support locally, thus creating their first impact on a restricted community, and only later, and often as a result of sporadic promotional efforts by a few prominent individuals, do the proposals receive national attention, it is logical so to design protective procedures as to handle such situations at the local level; therefore be it

Resolved, That the collection and evaluation of scientific and clinical evidence on claims for the diagnosis and treatment of cancer be recognized as a responsibility of state and regional medical societies; and be it further

Resolved, That the state medical societies be encouraged to establish state cancer commissions or committees to assume this responsibility, following the general pattern developed by the California Medical Association and working in close cooperation with other local and national health agencies; and be it further

Resolved, That the House of Delegates of the American Medical Association urges the state medical societies to establish such groups, and that at an opportune time the Association arrange a conference of representatives from the various state medical societies (in cooperation with the other sponsoring agencies and the Committee on Cancer Diagnosis and Therapy, if this is desired) for the consideration of effective organizations and study mechanisms.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

Dr. L. Howard Schriver, Chairman, Utah, read the following report, which was adopted:

Resolution No. 15 on Establishment of Cancer Commissions by State Medical Societies: Your committee approves Resolution No. 15 and recommends its referral to the Board of Trustees for implementation.

No. 16. Resolution on Survey of Medical Profession by State Societies Regarding Social Security Act

Dr. Clifford C. Sherburne, on behalf of the Ohio State Medical Association, introduced the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, Misunderstanding exists about the position of the medical profession on the question of the inclusion of physicians in the Old Age and Survivors Insurance provisions of the federal Social Security law; and

WHEREAS, The Ohio State Medical Association, in accordance with a mandate from its House of Delegates, made a survey of its membership on this question; and

WHEREAS, The Ohio State Medical Association sent ballots and pro and con material to 8,360 members, asking them to vote on the following: "Do you favor extension of the Old Age and Survivors benefits coverage of the federal Social Security Act to physicians? If your answer is 'Yes' do you believe participation by physicians should be: Compulsory or voluntary?"; and

WHEREAS, Four thousand nine hundred and twelve ballots were returned, approximately 60% of those sent out, with the following results: 2,441 ballots were marked "no" indicating that those physicians are not in favor of social security coverage for physicians on any basis; only 370 votes were cast in favor of compulsory coverage; those favoring voluntary participation numbered 2,070 and 19 physicians voted in favor of coverage but without stating a preference; 12 ballots could not be tabulated because of irregularity in answering the questions; and

WHEREAS, The poll conducted by the Ohio State Medical Association clearly indicates that an overwhelming majority of the members voting are opposed to compulsory inclusion of physicians in the federal social security law, with a substantial number favoring participation on a voluntary basis; therefore be it

Resolved, That the House of Delegates of the American Medical Association recommend to state societies that they make a similar survey to that conducted in Ohio, if they have not already done so, and that the results of the poll be transmitted to the Board of Trustees of the American Medical Association.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Paul A. Davis, Chairman, Ohio, read the following report, which was adopted:

Resolution No. 16: Your committee has given serious study to this resolution. In view of the various controversial questions which have arisen, the committee offers the following substitute resolution:

WHEREAS, Misunderstanding exists about the position of the medical profession on the question of the inclusion of physicians in the Old Age and Survivors Insurance provisions of the Social Security Act; therefore be it

Resolved, That the House of Delegates of the American Medical Association recommend to state societies that they poll their entire membership on this question, and that the results of the poll be transmitted to the Board of Trustees of the American Medical Association as soon as possible.

No. 17. Resolutions on Medical Representation on Voice of America

Dr. George W. Slagle, for the Michigan delegation, introduced the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, Health conditions in all other countries of the world affect the health of the people of Michigan; and

WHEREAS, The practice of medicine in Michigan is influenced by methods of practice in nations other than the United States; and

WHEREAS, The Voice of America can be a powerful influence to spread to all nations the health knowledge of American medicine and the advantages to patients and professions of the system of medical practice current in the United States today; and

WHEREAS, Expression of this health and medical information can be made best by representatives selected from the American medical profession; therefore be it

Resolved, That the American Medical Association request the Voice of America to include in its regular programs some programs prepared and presented by representatives of the American Medical Association; and be it further

Resolved, That the Board of Trustees of the American Medical Association be respectfully requested to defray the expenses and salaries involved in supplying personnel for the above purposes to the Voice of America.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Paul A. Davis, Chairman, Ohio, submitted the following report, which was adopted:

Resolution No. 17 on Medical Representation on Voice of America: Your committee recommends the adoption of this resolution, with the following changes: (1) That in the first and the second "Whereas" the words "the people of Michigan" be changed to read "the people of the United States," and that in the third "Whereas," after the words "The Voice of America," the following be inserted "and/or Radio Free Europe," and (2) that these same words be inserted in the first and the second "Resolved."

No. 18. Resolution on American Medical Association Study Committee on Highway Accidents

Dr. Clarence I. Owen, for the Michigan delegation, presented the following resolution, which was referred to the Reference Committee on Hygiene, Public Health, and Industrial Health:

Resolved, That the American Medical Association House of Delegates request the Board of Trustees to study the prevention of highway accidents.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

Dr. L. Howard Schriver, Chairman, Ohio, presented the following report, which was adopted:

Resolution No. 18 on American Medical Association Study Committee on Highway Accidents: Your reference committee approves Resolution No. 18.

No. 19. Resolution on National Regulation of Automobile Safety Standards

Dr. Clarence I. Owen, for the Michigan delegation, introduced the following resolution, which was referred to the Reference Committee on Hygiene, Public Health, and Industrial Health:

Whereas, Traffic accidents in the United States claim 38,000 lives and 1,250,000 injured each year, with a probable 45% increase in vehicle mileage in the next ten years; and

Whereas, This death and accident toll could be materially reduced through improvement in automotive safety design and construction; and

Whereas, All other modes of public transportation except that by automobile are already safeguarded by federal safety standards; therefore be it

Resolved, That the American Medical Association, through its House of Delegates, strongly urges the President of the United States to request legislation from Congress authorizing the appointment of a national body to approve and regulate safety standards of automobile construction.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

Dr. L. Howard Schriver, Chairman, Ohio, read the following report, which was adopted:

Resolution No. 19 on National Regulation of Automobile Safety Standards: Your committee approves Resolution No. 19 and recommends that it be referred to the present committee entitled, "Committee on Crash Injuries," its title being changed, however, to "Medical Aspects of Automobile Injuries and Deaths," *and your reference committee recommends that this* committee interest itself at once in this very important health problem.

No. 20. Resolutions on Report of Board of Trustees on Report of Committee on Medical Practices

Dr. John S. DeTar, for the Michigan delegation, introduced the following resolutions, which were referred to the Reference Committee on Insurance and Medical Service:

Whereas, Action on the recommendation of the Board of Trustees concerning the report of the Committee on Medical Practices was postponed until this meeting, allowing all delegates an opportunity to study the report; therefore be it

Resolved, That the recommendations of the Board of Trustees be approved, with the following additional qualifications:

1. That the Council on Medical Service be instructed to continue its studies on professional services indices (relative value scales), utilizing as consultants representatives of the specialties, general practice, and the voluntary insurance plans;

2. That the American Medical Association communicate to the specialty boards *and to the specialty societies* the findings made by the Committee on Medical Practices, encouraging the boards and societies to reappraise the value of their regulations restrictive on the practice of those seeking or holding board certificates or specialty society memberships;

3. That the American Medical Association reaffirm the action of the House of Delegates of 1947 as follows: "It was never intended that staff appointments in hospitals generally, or even in hospitals approved for residencies, should be limited to board certified physicians, as is now the policy in some hospitals. Such policies, if practiced extensively, are detrimental to the health of the people and therefore to American Medicine. Hospital staff appointments should depend on the qualifications of physicians to render proper care to hospitalized patients as judged by the professional staff of the hospital and not on certification or special society membership";

4. And further, that the American Medical Association continue to use its full influence to discourage the arbitrary restriction by hospitals against general practitioners as a group, regardless of their qualifications as individuals, by (*a*) encouragement by the Council on Medical Education and Hospitals of departments of general practice in all general hospitals where practicable, and (*b*) approval of the expressed policy of the Joint Commission on Accreditation of Hospitals of hospital staff rules which permit to the generalist privileges in the departments of medicine, surgery, obstetrics, and pediatrics in accordance with his demonstrated ability; and be it further

Resolved, That a copy of this resolution be sent to the American College of Surgeons, the American College of Physicians, the American Academy of Pediatrics, the American Academy of Obstetrics and Gynecology, the American Academy of General Practice, the American Hospital Association, the Catholic Hospital Association, the American Protestant Hospital Association, and the chief of staff of every hospital in the United States and its territories.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

The report of the reference committee on Resolution No. 20 will be found following supplementary report F of the Board of Trustees on page 1652 of the Dec. 24, 1955, issue of The Journal.

No. 21. Resolution on Alphabetical Listing of Alaska and Hawaii in American Medical Association Publications

Dr. George W. Slagle, on behalf of the Michigan delegation, submitted the following resolution, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

Whereas, The Hawaii Medical Association will be 100 years old next year, having been incorporated in 1856 under the Hawaiian monarchy; and

Whereas, The Hawaii Medical Association has been a constituent association of the American Medical Association for half a century, having been represented in the House of Delegates at most sessions since 1904 and at all sessions since 1930; and

Whereas, Hawaii is an integral part of the United States of America, as shown by the fact that its residents are citizens and pay the federal income tax, and by a recent federal court decision holding that travel to Hawaii does not constitute travel outside the United States; and

Whereas, The District of Columbia is routinely listed in alphabetical sequence among the states in all publications and studies by the American Medical Association, while Hawaii is either omitted, or listed with "foreign countries" or "possessions," or at best brings up the rear, following Wyoming; and

Whereas, The Alaska Territorial Medical Association enjoys, in all respects except size, a status equivalent to that of Hawaii; now therefore be it

Resolved, That in all future studies or publications of the American Medical Association all constituent societies be listed in alphabetical order regardless of whether those societies are state or territorial.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Homer M. Izumi, Chairman, Hawaii, presented the following report, which was adopted:

Resolution No. 21 on Alphabetical Listing of Alaska and Hawaii in American Medical Association Publications: Your committee agrees that the listing in the American Medical Association publications should be in alphabetical order.

No. 22. Resolutions on Medical Society-Sponsored Voluntary Prepaid Medical Care Plans

Dr. Thomas J. Danaher, Connecticut, on behalf of the Connecticut delegation, Dr. Charles G. Hayden, Massachusetts, and the New Jersey delegation, introduced the following resolutions, which were referred to the Reference Committee on Insurance and Medical Service:

Whereas, The participating and cooperating physicians of medical care plans sponsored by county, state, and local medical societies are making a valuable contribution in the public interest by furthering the development of voluntary prepaid medical care for the people of America; and

Whereas, More than 100,000 members of the American Medical Association are participating in physician-sponsored prepaid medical care plans; therefore be it

Resolved, That this House of Delegates commends these physicians and the medical society-sponsored plan in which they participate for the important services being rendered in health care for the American people; and be it further

Resolved, That the American Medical Association reaffirm its approval of medical society-sponsored nonprofit prepaid medical care plans as a means for financing medical care.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. Lewis A. Alesen, Chairman, California, read the following report, which was adopted:

Resolution No. 22 on Medical Society-Sponsored Voluntary Prepaid Medical Care Plans: Your committee concurs in the objectives, philosophy, and mode of their expression in this resolution with the one exception that it is your committee's understanding that some commendation has been given formerly by the House of Delegates in the past. Therefore, the resolution is presented with the third "Whereas" deleted. Your committee also suggests that wherever the words "participating physicians" appear, they be amended to read, "participating and cooperating physicians." With these amendments the committee recommends that the resolution do pass.

No. 23. Resolutions on the Practice of Pathology

Dr. Clark Bailey, for the Kentucky delegation, introduced the following resolutions, which were referred to the Reference Committee on Medical Education and Hospitals:

WHEREAS, The American system of private practice of medicine has given us the highest health and medical standards in the world; and

WHEREAS, The American Medical Association has publicly declared its stand in favor of this system of private practice; and

WHEREAS, The practice of pathology including both clinical pathology and anatomic pathology has been regarded as the practice of medicine; and

WHEREAS, In certain states whose laws concerning the practice of medicine are similar to our own the attorneys general have officially interpreted the operation of laboratories, x-ray departments, and anesthesia departments by corporations such as hospitals as illegal and acceptance of salaries or commissions from such corporations by licensed practitioners of medicine as unethical fee splitting; and

WHEREAS, As a result of this interpretation an attempt is being made by certain lay groups to cause revision of the law or its interpretation to permit division of pathology into professional and technical service, the former being personal labor of the pathologist and therefore being the practice of medicine, the latter being the work of the technical assistants who perform under his direction and supervision and therefore not the practice of medicine and legally practiced by a hospital; and

WHEREAS, If this position should be sustained the practice of pathology and thus of all medicine would be in danger of being taken over piecemeal by nonmedical personnel and corporations to the detriment of both patients and physicians; and

WHEREAS, As early as 1943 the American Medical Association studied this problem and stated that the "House of Delegates of the American Medical Association is opposed to the division of any branch of medical practice into so-called technical and professional factions," and also that "the practice of anesthesiology, pathology, physical medicine, and radiology are an integral part of the practice of surgery, internal medicine, or any other designated field of medicine"; therefore be it

Resolved, That the House of Delegates of the Kentucky State Medical Association is opposed to the division of any branch of medical practice into so-called technical and professional factions and furthermore instructs its delegates to the American Medical Association to maintain this position; and be it further

Resolved, That because of the confusion existing in many states in regard to this question, that the House of Delegates of the American Medical Association reaffirm its position taken in 1943.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. George M. Fister, Chairman, Utah, read the following report, which was adopted:

Your reference committee has reviewed resolution No. 23 submitted by the Kentucky delegation in regard to its resolution on the practice of pathology. Your reference committee agrees with the intent of the resolution but for purposes of clarity would like to recommend its adoption in amended form. Your committee is, therefore, suggesting that the resolution be worded as follows:

WHEREAS, The American system of private practice of medicine has given us the highest health and medical standards in the world; and

WHEREAS, The American Medical Association has publicly declared its stand in favor of this system of private practice; and

WHEREAS, The practice of pathology, including both clinical and anatomic pathology, is the practice of medicine; and

WHEREAS, In many states the attorneys general have written opinions stating that the operation of laboratories and departments of radiology and anesthesia by corporations, including hospitals, is illegal, and that the acceptance of employment from such corporations by a licensed practitioner of medicine under terms permitting the corporation to charge a fee for his services is unethical fee splitting and illegal; and

WHEREAS, As a result of such interpretations attempts are being made by certain lay groups to amend the laws, or their interpretations, to permit the division of pathology into professional and technical services, the latter to be the work of the pathologist's technical assistants who perform under his direction and supervision and not to be considered the practice of medicine and, therefore, services which may be legally performed by a hospital; and

WHEREAS, If this position should be sustained, fragmentation of the practice of pathology would be accomplished and thus all medicine would be in danger of being so divided to the detriment of the patient; and

WHEREAS, As early as 1943 the American Medical Association studied this problem and stated that the "House of Delegates of the American Medical Association is opposed to the division of any branch of medical practice into so-called technical and professional factions," and later, in 1951, that "the practice of anesthesiology, pathology, physical medicine, and radiology are an integral part of the practice of medicine in the same category as the practice of surgery, internal medicine, or any other designated field of medicine"; therefore be it

Resolved, That the House of Delegates of the American Medical Association is opposed to the division of any branch of medical practice into so-called technical and professional services; and be it further

Resolved, That because of the confusion existing in some states in regard to this question this House of Delegates reaffirm the position taken in 1943 and 1951.

Nos. 24 and 25

Dr. Clark Bailey, on behalf of the Kentucky delegation, introduced the two following resolutions, Nos. 24 and 25, which were referred to the Reference Committee on Medical Education and Hospitals:

No. 24. Resolution on Present Standards as Prescribed by Joint Commission on Accreditation of Hospitals

WHEREAS, The individual and private practice of medicine has raised American Medicine to its present high level envied by all nations; and

WHEREAS, Any system which deprives any doctor, hospital, or groups of doctors or hospitals of their initiative will result in lowered standards of medical care; and

WHEREAS, Any organization or groups of organizations which dictate standardization on a national level without adequate consideration of varying local problems results in the deprivation of said initiative; and

WHEREAS, The establishment of such standards to be met on a national scale should only be arrived at by the collective opinions of the individual hospitals and doctors involved; and

WHEREAS, The present standards, as prescribed by the Joint Commission on Accreditation of Hospitals, have been arrived at by autocratic rather than by democratic methods; and

WHEREAS, This autocratic system does not take into consideration the local, economic, and medical factors of each hospital, which may be different depending on the type, size, degree of departmentalization, and financial resources, etc.; and

WHEREAS, Impractical standards for hospitals have already increased the cost of hospital care and will continue to increase hospital costs with no resulting benefit to the patient; and

WHEREAS, The private practice of medicine is striving to lower hospital costs to patients and to increase voluntary prepaid hospitalization insurance at a premium which can be afforded by all income groups; and

WHEREAS, Requirements of the Joint Commission on Accreditation of Hospitals cause a definite increase in all hospitalization costs by demanding unnecessary routine laboratory procedures and additional administrative costs; and

WHEREAS, The medical profession is constantly being burdened by more and more rules and regulations; and

WHEREAS, These various rules and regulations cause more and more time to be spent at various and sundry unnecessary meetings; and

WHEREAS, These various meetings tend to separate the medical profession into various hospital groups to the detriment of the unity and strength of county and state medical societies, which are the backbone of American medicine; and

WHEREAS, This disunity, increased cost of medical care, and possible breakdown of prepaid voluntary health insurance plans open the way to regimentation and governmental control of the practice of medicine; and

WHEREAS, The inspections done in the past have frequently been made by personnel of the Joint Commission on Acreditation of Hospitals unfamiliar with the private practice of medicine; and

WHEREAS, The results of inspection have obviously been discriminatory in many respects; and

WHEREAS, Many of the criticisms offered by inspectors in individual instances have indicated obvious prejudice and lack of thorough understanding of the local situation; and

WHEREAS, The Campbell-Kenton Counties Medical Society of Kentucky, feels keenly its responsibility for the health needs of the people of our community and all communities and is ever alert and anxious to institute and promote methods and practices which will better accomplish this purpose; and

Whereas, The Campbell-Kenton Counties Medical Society of Kentucky strongly feels that the methods of the Joint Commission on Accreditation of Hospitals have failed to promote these ideals; and

Whereas, The Kentucky State Medical Association now goes on record as vigorously opposing the present system, methods of operation, and standards of the Joint Commission on Accreditation of Hospitals; therefore be it

Resolved, That the delegates from Kentucky to the American Medical Association present this resolution to the House of Delegates of the American Medical Association at its next meeting and work vigorously for the adoption of this resolution.

No. 25. Resolution on Opposition to Policy of Joint Commission on Accreditation of Hospitals in Limiting Number of Courtesy Staff Memberships in Private General Hospitals

Whereas, Local traditions and usages have made good medical care often contingent on each physician having staff privileges in two or more hospitals; and

Whereas, Pressure is currently being applied by the Joint Commission on Accreditation of Hospitals to cause local private hospitals to limit the number of physicians who may hold courtesy staff privileges; and

Whereas, This policy seems to connote a disregard of the patient's choice in hospitals and creates a community problem; and

Whereas, The House of Delegates of the Kentucky State Medical Association expresses opposition to the policy of the Joint Commission on Accreditation of Hospitals regarding the number of courtesy staff memberships in private general hospitals; therefore be it

Resolved, That the Kentucky delegates to the American Medical Association be instructed by this resolution to represent members of the Kentucky State Medical Association as being opposed to this policy at the next meeting of the House of Delegates of the American Medical Association.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. George M. Fister, Chairman, Utah, presented the following report, which was adopted:

Your reference committee has reviewed Resolution No. 24, submitted by the Kentucky delegation, on the present standards as prescribed by the Joint Commission on Accreditation of Hospitals, and Resolution No. 25, also submitted by the Kentucky delegation, dealing with opposition to the policy of the Joint Commission in limiting the number of courtesy staff members in private hospitals. These two resolutions, in the opinion of your reference committee, fall within the area of study which is now being made by the special committee which has been appointed to study the activities of the Joint Commission on Accreditation of Hospitals. Your reference committee recommends that no action be taken on these resolutions at this time and that they be referred to the special committee now studying similar problems with the request that they report on them at the June meeting in 1956.

No. 26. Resolution on Guiding Principles Recommended by Committee on Medical Care for Industrial Workers

Dr. Clark Bailey, for the Kentucky delegation, introduced the following resolution, which was referred to the Reference Committee on Insurance and Medical Service:

Whereas, Guiding Principles in regard to health center plans were recommended by the *Committee on Medical Care for Industrial Workers* of the Councils on Medical Service and Industrial Health and printed in The Journal following the last annual meeting in Atlantic City; and

Whereas, These Guiding Principles will be an order of business for adoption before the American Medical Association House of Delegates; and

Whereas, The house of delegates of the Kentucky State Medical Association recommends the deletion of the term "Joint Commission on *Accreditation of Hospitals*," *from* Section VI (C); and

Whereas, The house of delegates of the Kentucky State Medical Association recommends "the rewriting of Section X, public and community relations, of the same report to remove the ambiguity in this section, relative to the free choice of physicians"; and

Whereas, A special committee was authorized by the American Medical Association House of Delegates at the 1955 Atlantic City meeting to study the functions of the Joint Commission on Accreditation of Hospitals and the adoption of the aforenamed principles would be presumptuous and precocious; therefore be it

Resolved, That the House of Delegates of the American Medical Association be asked to accomplish the deletion and rewriting of the paragraphs referred to above as requested by the house of delegates of the Kentucky State Medical Association in the interest of better medical practice.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. Lewis A. Alesen, Chairman, California, read the following report, which was adopted:

Resolution No. 26 and Guiding Principles for Evaluating Management and Union Health Centers: Your reference committee considered Resolution No. 26 in connection with the item entitled, "Guiding Principles for Evaluating Management and Union Health Centers contained in the report of the Council on Medical Service.

Special attention is directed to this subject, which drew considerable discussion from a number of interested parties. This discussion resulted in almost complete approval when Section X was amended in accordance with suggestions made by the Kentucky delegation and when Section VI (C) was deleted. At present Section X reads as follows:

> X. Public and Community Relations—There are many social, public health, and welfare agencies, both public and voluntary, concerned with the health and well being of local citizens. It is the responsibility of health center personnel to maintain good and effective relations with the staffs of such organizations. It is, therefore, of the greatest importance that persons eligible to participate in the health center's program know that they are free to seek medical care from whomsoever and wheresoever they wish. They should be made aware, however, that unless management or health center programs provide for the payment of such services, they are not obligated to contribute to the payment of services obtained *outside* of *their* medical program.
>
> Finally, to the extent that these guiding principles are observed, the medical profession will improve the quality of medical care accorded the patient and the community.

This has been amended to read: "As one aspect of this responsibility the health center is urged to provide, insofar as possible, a free choice of medical service to the patient it serves. When service outside a specific center facility cannot be paid for under the terms of the plan, patients should be informed that they are privileged to obtain such services as they wish outside the center at their own expense."

Section VI (C) which is to be deleted, reads as follows: "The basic requirements established for all approved hospitals and outpatient departments according to the criteria of the Joint Commission for Accreditation of Hospitals should apply to the medical staffs of agencies serving this field."

No. 27. Resolution on Rehabilitation Consultation Service

Dr. Hugh H. Hussey, District of Columbia, introduced the following resolution, which was referred to the Reference Committee on Hygiene, Public Health, and Industrial Health:

Whereas, The handicapped person looks to the medical profession for treatment to restore him or her to a status of work ability or self-help; and

Whereas, There are few facilities in the United States which miantain a complete restoration program for the disabled; and

Whereas, Numerous lay-sponsored and lay-supported agencies supply partial restorative facilities manned for the most part by personnel having little or no medical supervision; and

Whereas, Teaching and training programs in these facilities can give instruction only in limited areas of rehabilitation; and

Whereas, Rehabilitation is a broad concept involving the integrated use of multiple disciplines, including medicine, education, counseling, job placement, and *others in which medicine should logically* accept the over-all responsibility for the general program and to the handicapped individual; and

Whereas, There is no organized service or policy now existing in the program of the American Medical Association; therefore be it

Resolved, That the House of Delegates of the American Medical Association establish an integrated consultation service to state societies and outline a policy of procedure for the guidance of local professional groups in dealing with the total program of rehabilitation.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

Dr. L. Howard Schriver, Chairman, Ohio, submitted the following report, which was adopted:

Resolution No. 27 on Rehabilitation Consultation Service: Your committee approves Resolution No. 27 in principle and believes the medical profession should take a leading part in this project.

No. 28. Resolutions on General Practice

Dr. Kenneth C. Sawyer, Colorado, presented the following resolutions, which were referred to the Reference Committee on Insurance and Medical Service:

WHEREAS, The preservation of the general practice of medicine is considered to be in the interests of comprehensive medical care; and

WHEREAS, Access to hospital facilities is considered to be an absolute necessity for the good practice of medicine; and

WHEREAS, The trend toward specialization has advanced to an extent which jeopardizes the supply of generalists in the foreseeable future; and

WHEREAS, It is the duty of the American Medical Association to assume an active role in all matters affecting the medical care of the American people; therefore be it

Resolved, That the American Medical Association approve of the medical school teaching programs which afford the medical student opportunity for experience in the general practice of medicine; and be it further

Resolved, That the Council on Medical Education and Hospitals be directed to utilize all possible means to stimulate the formation of a department of general practice in each medical school; and be it further

Resolved, That the Council on Medical Education and Hospitals be directed to develop and utilize all means to implement, improve, and extend the two-year general practice internship-residency program; and be it further

Resolved, That the American Medical Association condemn hospital staff policies which exclude or arbitrarily restrict the general practitioner from hospital privileges essential for the general practice of medicine; and be it further

Resolved, That the American Medical Association approve hospital staff rules which permit the generalist staff privileges in the departments of medicine, pediatrics, obstetrics, and surgery in accordance with his demonstrated professional competence and experience; and be it further

Resolved, That the Council on Medical Education and Hospitals be instructed to implement this policy by whatever means necessary; and be it further

Resolved, That the representatives of the American Medical Association on the Joint Commission on Accreditation of Hospitals be instructed to stimulate action by that body leading to the warning, provisional accreditation or removal of accreditation of community or general hospitals which exclude or arbitrarily restrict hospital privileges for generalists as a class regardless of their individual professional competence, after appeal to the Commission by the county medical society concerned; and be it further

Resolved, That a copy of this resolution be sent to the dean of each medical school, the American College of Surgeons, the American College of Physicians, the American Academy of Pediatrics, the American Academy of Obstetrics and Gynecology, the American Academy of General Practice, the American Hospital Association, the Catholic Hospital Association, the American Protestant Hospital Association, and the chief of staff of every hospital in the United States and its territories.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

The report of the reference committee on Resolution No. 28 will be found following supplementary report F of the Board of Trustees on page 1652 of the Dec. 24, 1955, issue of THE JOURNAL.

No. 29.—Resolution on Federal Subsidy for Medical Education

Dr. Joseph B. Copeland, for the Texas delegation, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Preamble: In spite of the fact that more doctors of medicine are now being graduated from the 80 medical schools in the United States than ever before, with acknowledged highest standards of training and without definite federal subsidy, S. 1323 now pending before the 84th Congress with an appropriation of $250,000,000 would clearly launch a program of federal subsidy for medical education. The American Medical Association has consistently held the opinion that federal aid is a "dangerous device because of the degree of regulation which must necessarily accompany federal funds." Under the provisions of S. 1323 the federal government would have the legal right to subsidize the cost of maintenance of the new facilities built under its provisions by allowing the applicant to set aside 20 per cent of the federal grant for "permanent endowment." Past experience has shown that the stipulations of a "temporary emergency" and "single grant" offer no protection against perpetuation, since the same philosophy was incorporated in the Hill-Burton laws which have been extended recently to 1957. Therefore, be it

Resolved, That it is the opinion of this House of Delegates that said S. 1323 represents a definite step toward the socialization of medical education and practice in this country and therefore should be rejected by the Congress; and be it further

Resolved, That copies of this resolution be sent to all members of the Senate and House of Representatives of the 84th Congress.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Paul A. Davis, Chairman, Ohio, read the following report, which was adopted:

Resolution No. 29 on Federal Subsidy for Medical Education: This resolution, on S. 1323, runs contrary to the position of the American Medical Association, as reported by the Committee on Legislation. Your reference committee therefore recommends that this resolution be not approved.

No. 30. Resolutions on Appointment of Special Commission to Review the Social Security System

Dr. Joseph B. Copeland, on behalf of the Texas Medical Association, introduced the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Preamble: It is a publicly acknowledged fact and a matter of record that H. R. 7225 of the 84th Congress was passed out of the House Ways and Means Committee without public hearings, without independent actuarial consultation, and against the recommendation of the Department of Health, Education, and Welfare and was passed by the House under a suspension of the rules which prevented adequate debate. It is also apparent that no adequate study or review of the Social Security system has been made by Congress, that very few citizens have any real insight into the legal provisions of the Social Security law and amendments, and that no readily available report has ever been made of the present status of the so-called "Trust Fund" nor of the potential eventual cost of payments as now planned for citizens participating in the Social Security plan. Good business principles and justice would indicate that a very painstaking and openly-reported study should be made of the entire Social Security system before any more changes are made in it. The Senate of the 84th Congress will be having hearings on H. R. 7225 early in 1956; now therefore be it

Resolved, By the House of Delegates of the American Medical Association that we urge the Congress to withhold action on H. R. 7225 and to provide for the appointment of a comprehensive Commission to Review the Social Security System and to report back to Congress and the nation after an adequate study; and be it further

Resolved, That copies of this resolution be sent to the President of the United States and members of his Cabinet, to all members of the 84th Congress, and to all constituent state medical associations.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

The report of the reference committee on Resolution No. 30 will be found following supplementary report B of the Board of Trustees on page 1650 of the Dec. 24, 1955, issue of THE JOURNAL.

No. 31. Resolution on Commendation to Physicians of Iowa

Dr. Percy E. Hopkins, Illinois, introduced on behalf of the Illinois, Colorado, Wisconsin, and Louisiana delegations, the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The physicians of Iowa have for the past year been engaged in supporting the position that the practice of medicine is the right of the individual; and

WHEREAS, A decision rendered by a District Court of the state of Iowa upheld this position; and

WHEREAS, This decision is expected to have a far-reaching effect on the practice of medicine throughout the nation; therefore be it

Resolved, That the House of Delegates of the American Medical Association congratulate the physicians of Iowa on the successful outcome of the initial phase of this action, and commends them for the able way in which they presented the position of the American medical profession.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Frank H. Krusen, Chairman, Section on Physical Medicine, presented the following report, which was adopted unanimously:

Resolution No. 31 on Commendation to Physicians of Iowa: Your reference committee is in complete accord with this resolution recommending that the House congratulate the physicians of Iowa on the successful outcome of the initial phase of its action in supporting the position that the practice of medicine is the right of the individual. Your committee notes with gratification the decision of the judge in this case, which is in full support of the contentions of the physicians involved. Your committee recommends the adoption of this resolution with expressions of appreciation to the many physicians of Iowa who have labored so industriously in support of the rights of our profession.

No. 32. Resolutions on Chamber of Councillors to American Medicine

Dr. Russel V. Lee, Section on Military Medicine, introduced the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

WHEREAS, American medicine has been and is deprived of the wise council of certain distinguished physicians whose professional activities have precluded their participation in organized medical affairs; and

WHEREAS, It is desirable that a means be provided whereby the American Medical Association may confer honor upon and official recognition to those physicians who have made great contributions to American medicine and American life; and

WHEREAS, The American Medical Association recognizes that various groups in this country have a vital and increasing interest in health and medical affairs and consequently desire and deserve a voice in the councils of American medicine not presently available to them; therefore be it

Resolved, That the House of Delegates of the American Medical Association hereby set up a special study committee, appointed by the chair, to consider and report to the next annual meeting on methods and means for the establishment of a Chamber of Councillors to American Medicine; and be it further

Resolved, That this study committee be instructed that the objectives of the establishment of this Chamber are: (1) to provide American medicine with a permanent council of advisors, physicians distinguished by attainments and integrity, who shall at appropriate intervals submit a report and recommendations to the House of Delegates of the American Medical Association; (2) to provide a means whereby recognition and honor may be conferred on those who have earned it; and (3) to furnish a forum where those groups that have real and legitimate interests in health affairs may express themselves; and be it further

Resolved, That the study committee be further instructed to consider the method of nomination and election to this Chamber, bearing in mind the primary purpose of including in it the most distinguished physicians of the country and those deserving of honor, and the secondary objective providing representation to such groups as farmers, laborers, industrialists, educators, insurance men, and others who truly have an interest in health affairs; and be it further

Resolved, That the committee furthermore be asked to make recommendations for the constitution and governing of the Chamber, means for its support, and any other matters which the committee deems pertinent to the objective of establishing a Chamber of Councillors to American Medicine.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Frank H. Krusen, Chairman, Section on Physical Medicine, read the following report, which was adopted:

Resolution No. 32 on Chamber of Councillors to American Medicine: Your reference committee reviewed this recommendation that a special study committee be appointed to consider the establishment of a Chamber of Councillors to American Medicine. It is believed that there is some merit to this proposal; however, it is also evident that the American Medical Association has already provided certain means of acknowledging the contributions to medicine of outstanding leaders. Your reference committee recommends that this resolution be referred to the Board of Trustees for consideration.

No. 33. Resolutions on Recognition of General Practitioners in Hospitals

Dr. James M. Kolb, Arkansas, introduced the following resolutions, which were referred to the Reference Committee on Medical Education and Hospitals:

WHEREAS, In certain hospitals in this country there is discrimination against the general practitioner; and

WHEREAS, The generalists or general practitioners of medicine in this country render most of the medical care to the American people; therefore be it

Resolved, That the American Medical Association through its Council on Medical Education and Hospitals encourage hospital staff rules which permit the general practitioner staff member privileges in the specialty departments in keeping with his merit and demonstrated ability; and be it further

Resolved, That the American Medical Association instruct its representatives on the Joint Commission on Accreditaiton of Hospitals to seek the adoption of the above recommendation by that body.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. George M. Fister, Chairman, Utah, submitted the following report, which was adopted:

Your reference committee reviewed Resolution No. 33 on Recognition of General Practitioners in Hospitals presented by the Arkansas delegation. Your reference committee is in agreement with the intent of this resolution that the American Medical Association through its Council on Medical Education and Hospitals encourage hospital staff rules which permit the general practitioner staff member privileges in the specialty departments in keeping with his merit and demonstrated ability, and recommends the adoption of this resolution.

No. 34. Resolution on Policies of American Medical Association on Matters Related to the Environment of Medicine

Dr. Joseph B. Copeland, for the Texas delegation, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Preamble: Physicians should accept their responsibilities as citizens first. This gives them the privilege and the obligation of taking a stand publicly on matters that involve the environment of medicine and the free enterprise system, all having to do with the public interest and the principles of government on which this country was founded; therefore be it

Resolved, That it is the intention of the House of Delegates of the American Medical Association that this House, the officers, and the proper councils and committees of the American Medical Association, acting in their respective capacities, always should feel free to express publicly the attitude of this Association on matters which involve the environment of medicine and the principles of free enterprise.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Paul A. Davis, Chairman, Ohio, presented the following report, which was adopted:

Resolution No. 34 on Policies of the American Medical Association on Matters Related to the Environment of Medicine: Your committee recommends the adoption of this resolution.

No. 35. Resolution on Cash Disability Benefits in H. R. 7225

Dr. Joseph B. Copeland, for the Texas delegation, introduced the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Preamble: The Social Security amendments proposed by H. R. 7225, now pending before Congress of the United States, provide the payment of cash benefits to the "totally and permanently disabled" at age 50 instead of the present age 65. Besides creating an enormous expense estimated at $250,000,000 for the first year, such a proposal very definitely would lead to an encroachment on the private practice of medicine, placing one more segment of medical care under the jurisdiction of the federal government and posing a definite threat to the effectiveness of present rehabilitation programs. The proposal represents another step in the master plan for the nationalization of medicine; now therefore be it

Resolved, That the House of Delegates of the American Medical Association expresses its disapproval of this specific proposal in H. R. 7225 which would provide the payment of cash benefits to the "totally and permanently disabled" at age 50, and calls upon Congress to defeat this legislation.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

The report of the reference committee on Resolution No. 35 will be found following supplementary report B of the Board of Trustees on page 1650 of the Dec. 24, 1955, issue of THE JOURNAL.

No. 36. Resolutions on Blue Shield Prepayment Health Insurance

Dr. L. Howard Schriver, Ohio, introduced the following resolutions, which were referred to the Reference Committee on Insurance and Medical Service:

WHEREAS, By action of the House of Delegates at the interim meeting in Cleveland, December, 1945, the Board of Trustees of the American Medical Association was requested to proceed with investigation and formation of a national organization to provide and serve the American people with prepayment health protection; and

WHEREAS, The Board of Trustees very promptly, through the Council on Medical Service, did proceed to implement the request of the House of Delegates; and

WHEREAS, In March, 1946, in St. Louis, the Council on Medical Service by its request met with nine representatvies of nonprofit voluntary professionally-sponsored prepayment plans; and

WHEREAS, The Associated Medical Care Plans was formed at that meeting; and

WHEREAS, At the time Associated Medical Care Plans was formed it consisted of nine plans, and the total number of people insured by all existing plans was approximately two million. This organization has grown to 77 plans servicing 44 States and the territories of Puerto Rico and Hawaii, affording prepayment health protection to 33 million people; and

WHEREAS, This is definite evidence of acceptability and confidence of the American people in this type of protection; and

WHEREAS, With actuarial experience, progressive extension and liberalization of protection has been afforded the subscriber; and

WHEREAS, Blue Shield contracts have the minimum of exclusions and waiting periods and no cancellation by the plan of subscriber protection, irrespective of utilization; and

WHEREAS, Blue Shield Plans are sponsored by either state or county medical societies which are component units of the American Medical Association; and

WHEREAS, The services to subscribers are underwritten by an overwhelming majority of the medical profession in the United States and in the territories of Puerto Rico and Hawaii; therefore be it

Resolved, That this House of Delegates approves the actions and accomplishments of the Blue Shield Association of Medical Care Plans; and be it further

Resolved, That this House of Delegates commends professionally-sponsored nonprofit health insurance to the American public.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. Lewis A. Alesen, Chairman, California, read the following report, which was adopted:

Resolution No. 36 on Blue Shield Prepayment Health Insurance: The discussion on this resolution was unanimously in favor of its passage with the addition of "as a means of financing medical care" to the last "resolved," and with the amendment of the eighth "whereas" to read as follows: "Whereas, Blue Shield contracts have the minimum of (1) exclusions, (2) waiting periods, and (3) cancellation by the plans of subscriber protection, irrespective of utilization; and" Your committee recommends adoption of this resolution with the amendments.

No. 37. Resolution on Dr. Creighton Barker

Dr. Stanley B. Weld, for the Connecticut delegation, introduced the following resolution, which was adopted by a unanimous rising vote:

WHEREAS, Dr. Creighton Barker, Executive Secretary of the Connecticut State Medical Society, has had the misfortune to sustain various and sundry injuries, which it is hoped may not prove serious, as the result of an automobile head-on collision; and

WHEREAS, Dr. Barker is still confined to bed in the Grace-New Haven Community Hospital; and

WHEREAS, Due to this accident Dr. Barker has been obliged to miss these sessions of the American Medical Association now being held in Boston and to forfeit his place on the panel program planned as part of the Scientific Assembly; therefore be it

Resolved, That the House of Delegates of the American Medical Association herein assembled express to Dr. Barker its deep regret that he is thus disabled and wish for him a speedy recovery.

No. 38

The speaker announced that Resolution No. 38, which was to have been introduced for the Texas delegation, had been withdrawn.

No. 39. Resolution on Illness of Dr. Edward R. Cunniffe

Dr. Floyd S. Winslow, on behalf of the New York delegation, and with the unanimous consent of the House, introduced the following resolution, which was adopted unanimously:

WHEREAS, A message has been received that Dr. Edward R. Cunniffe, for many years Chairman of the Judicial Council of the American Medical Association, is seriously ill; therefore be it

Resolved, That the Secretary of the American Medical Association is hereby requested to express to Dr. Cunniffe's family the regret of the members of this Association for his illness and their earnest hope for his speedy recovery.

SPECIAL REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

Dr. L. Howard Schriver, Chairman, Ohio, presented the following special report and moved that it be adopted and a copy sent to Dr. Peterson's family. The report was adopted by a unanimous rising vote.

MEMORIAL ON DEATH OF DR. CARL M. PETERSON

The House of Delegates notes with sorrow the untimely death on Sept. 27, 1955, of Dr. Carl Melancton Peterson, Secretary of the Council on Industrial Health of the American Medical Association. While traveling from a meeting of his Council to a conference in a distant city, Carl Peterson sustained injuries in an airplane accident from which he did not recover.

Carl Peterson had served the American Medical Association diligently and faithfully for 25 years. He had been the Secretary of the Council on Industrial Health since its inception 17 years ago. During these years his untiring efforts in carrying on the work of the Council and the medical profession gained for him an affectionate esteem which men garner when they demonstrate the kind of understanding, professional guidance, and leadership which Carl Peterson possessed. He moved among us in a quiet, unassuming yet confident manner which bespoke faith in his fellow physicians, understanding of the relationship of the physician and his patient, vision in the role of industrial medicine, and unswerving devotion to the fulfillment of those goals to which all of us are dedicated.

In the words of one who knew him well, "The world is a better place because he lived in it."

Messages of Condolence

Dr. R. A. Benson, Washington, informed the House of the recent illness of Dr. Raymond L. Zech, a member of the House of Delegates for a good many years, and moved that the House extend to Dr. Zech its appreciation for the work he has done and encouragement in his recovery. The motion was adopted unanimously.

Dr. Rutherford T. Johnstone, Section on Preventive and Industrial Medicine and Public Health, moved that the House of Delegates stand in silence for one moment in memoriam to Dr. Carl M. Peterson. The House rose in silent response.

Dr. Warren W. Furey, Illinois, for the Council on Constitution and Bylaws, requested the House to take recognition of the unavoidable absence of Dr. Louis A. Buie, Chairman of the Council, by asking the Secretary to send him a fitting telegram. The request was concurred in unanimously.

Dr. Carlton E. Wertz, New York, moved that the Secretary write an appropriate letter to the President of the United States on his recovery, and the motion was unanimously adopted.

Dr. Clarence I. Owen, Michigan, requested by motion that a telegram be sent to Dr. Wyman D. Barrett, a long-time delegate from Michigan, who is ill and unable to attend the Boston meeting. The motion was adopted unanimously.

Telegram from Dr. Wyman D. Barrett

The Speaker read to the House of Delegates the following telegram received from Dr. Wyman D. Barrett:

Many thanks to your officers, yourself, and all the delegates. Extremely sorry unable to be present. Know you will have an excellent meeting.

Reports from Student A. M. A. Delegates

Mr. Hugh Follmer, Student A. M. A. delegate, addressed the House as follows:

Mr. Speaker, Members of the House of Delegates, and Guests: It is indeed an honor to be present for the meeting of the House of Delegates and the meetings of the reference committees. The representatives from the Student American Medical Association always appreciate being here and enjoy their stay immensely. The last two days we have met many, many of the delegates. We are sorry that we could not meet everybody. We have found in discussions with the different members from the various states that many of them would like to know more about our organization, and because of this we would like briefly to run through some of the work we have done and explain very briefly what our interests are.

Our interests start with premedical education. We have a committee that is studying the question of premedical advisers. The question has arisen as to how good the premedical counseling is for men before they get to medical school, not only as to where to go to medical school and how to get into medical school but also what to take as an undergraduate. This committee is trying to gather information on premedical advising systems in the various states and schools, and we want to make available to all of our local chapters all the information we can on these entrants. We are especially interested in the fact that many, many of the premedical advisers are not M.D.'s; they are Ph.D.'s in chemistry, zoology, and so forth. We feel it is important that premedical students be advised by men who are in the profession themselves and who have better insight into what a man should take as a premedical student.

Our interests also fall into the medical school itself. We are interested in two things. We are interested in how the student finances his way through the medical school, and Mr. Wilson will cover that phase. We are also very interested in the curriculums of medical schools. We, in several of our chapters, have curriculum evaluations, and are gathering information on these evaluations so that this information may be passed out to all of our local chapters so that they may do a curriculum evaluation of their own.

When we speak about a curriculum evaluation, we are not speaking of which course should be in the curriculum and what course should not be in the curriculum. We are not evaluating the professors *per se*. We usually try to put our attention on the little parts course. It is very evident as you go along through medical school that every once in a while there is one course in which there is a great big hole. The professor does not realize it, the curriculum committees and often the students do realize it, and it is only from this that the information can be gained so that the professors can fill up this hole of knowledge. In several schools the professors have been very grateful for such evaluation, and we hope to continue it.

Naturally, being medical students, we are all interested in our internship. The SAMA has had a committee studying for two years the internship in its entirety. On the local level, we carry out a questionnaire program; it is an evaluation. These questionnaires are sent to all of the graduates from the school in the last year. They evaluate their internship very, very thoroughly, and these questionnaires are returned to the local chapter. It is a national program, but the information is not gathered nationally. The information is available to anybody who would care to write any of the local chapters. I know of no questionnaire which will answer more questions for a medical student about any particular internship, and many, many men have used these questionnaires before they start out to visit individual hospitals, and it helps them in selecting which hospitals they will visit. We have studied internships on a national level, the question of what is an internship, and our committee has passed a resolution which wholeheartedly approves the Essentials of an Approved Internship, which is before the House now, but we feel that the internship is a training program and we are encouraging training of the intern.

There has also been the question before our house of delegates, which is only natural I believe, as to the stipend paid interns, and I am sure you are all aware that most interns feel that they are underpaid. I am sure you gentlemen all felt that way when you were interns. We have passed a resolution in our house congratulating any hospital which pays its interns more than $100 a month plus board, room, and laundry, the reason for this being that interns find it is almost impossible to live on less than that amount of money, one of the main reasons for this being that a very high percentage of interns are married. As a matter of fact, the intern who is not married is almost an oddity in this day and age.

We have many, many other interests. One of our primary interests is to educate medical students in the ways of organized medicine. Along this line we have participated in the medicolegal symposiums that were held last month. We were very happy to be invited to this event. We feel that it is not only important but is a part of medical education that is often neglected, and, as I have expressed to many men, I would like to see all SAMA members invited to such things if there is enough room for them. That seems to be the primary problem usually, to get all the students in, but we like to see students come to this type of meeting because we feel they can learn more there than any other place.

Once again I want to thank you for your attention and for the wonderful hospitality.

Mr. Harry Wilson, Student A. M. A. delegate, addressed the House with the following remarks:

Mr. Speaker, Members of the House and Guests: Since last June and our last report to you, one of the fondest hopes of SAMA has become a reality. This has been the establishment of the SAMA Foundation. The Foundation has been created through a trust agreement as a charitable and educational, nonprofit corporation. It is intended that the principal object and purpose of the Foundation shall be to provide financial assistance to medical students. The loan shall be available to any medical student having successfully completed his first year of medical education. There shall be required no co-signers or endorsers or collateral to obtain these loans. There is a very low interest rate scale, which is graded, and the maximum tenure of the loans shall be until six years after the calculated date of graduation. This fund was only initiated after research was done to evaluate the need for such a fund on the national level, and we feel that there is definitely a need for loans to be available to medical students on a national level, and that it is a great advantage to get this on a national level. The local selection committees in each medical school will review loan applications and submit their recommendations to a National Selection Committee for final action.

Our promotion initiating this Foundation will be directed primarily toward the encouragement of the premedical student and the high school student to enter the field of medicine with some knowledge ahead of time about the financial obligations involved. We hope that this Loan Foundation will encourage him to be more secure to enter the study of medicine.

Finally, I do not want to miss this opportunity to reemphasize the importance of the cooperation of the state and county medical societies with your Student American Medical Association chapters in your states. One opinion that has been expressed to us more often while we have been here at this meeting than any other is that many of your members wish that a Student A. M. A. had been in existence when they were going through medical school. I think this is a very important point, and it should not be overlooked. Many of the problems that we feel, just coming into this realm of the American Medical Association and organized medicine, when we see them from an objective viewpoint really, because we are not yet involved in them directly, we realize would have been smoothed out long, long ago if the exposure to organized medicine in the beginning had been more thorough and doctors could evaluate it when they first went into their medical societies at the county and state levels and then finally when they come to be represented here.

Once again, I thank you very, very much for the honor and privilege of being here and having had an opportunity to speak to you at this meeting.

Contribution to American Medical Education Foundation

Dr. George M. Fister, Utah, on behalf of the physicians of the State of Utah, presented to the American Medical Education Foundation checks totaling approximately $11,000.

SUPPLEMENTARY REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

In the absence of Dr. George M. Fister, Chairman, Dr. Warde B. Allan, Maryland, member of the reference committee, read the following supplementary report, which was adopted:

Through an oversight that was called to your committee's attention, we did not specifically accept the supplementary report R of the Board of Trustees, which requested and recommended that a smaller committee of nine members instead of eleven be composed of two members of the Board, et cetera, and, as a supplementary report of the Reference Committee on Medical Education and Hospitals, the acceptance of this report is recommended.

Retiring Delegates

The Speaker announced that several members of the House of Delegates were voluntarily retiring and would not serve as delegates after this session. He introduced Dr. Karl S. J. Hohlen, Nebraska, a delegate for 17 years who has never missed a meeting; Dr. Bruce Underwood, Kentucky, who is also secretary of the Kentucky State Medical Association; Dr. A. A. Brindley, Ohio; Dr. B. O. Edwards, North Carolina; and Dr. George A. Unfug, Colorado.

Dr. Woodruff L. Crawford, Section on Pediatrics, stated that Dr. Homer M. Izumi, Hawaii, is retiring; Dr. Willis H. Huron, Michigan, brought up the name of Dr. Ralph A. Johnson, Michigan, also voluntarily retiring; and Dr. Grover C. Penberthy, Section on Surgery, General and Abdominal, announced that Dr. Russel V. Lee, Section on Military Medicine, is serving as a delegate for the last time.

The Speaker called on each of the delegates named to stand, and the members of the House expressed appreciation of their services.

Messages of Condolence

Dr. Warren W. Furey, Illinois, by motion, asked that the House of Delegates take recognition of the fact that Dr. Vincent W. Archer, Virginia, was unavoidably absent from this session because of ill health, and express wishes for his speedy recovery. Dr. Furey's motion was adopted unanimously.

Dr. Laurence S. Nelson Sr., Kansas, moved that a message be sent to the widow of Dr. John Porter, a delegate from Kansas for a considerable number of years, who died early in September. This motion also was unanimously adopted.

Report of Reference Committee on Rules and Order of Business

Dr. B. O. Edwards, Chairman, North Carolina, presented the following report, which was adopted:

Mr. Speaker and Members of the House of Delegates: On behalf of the Reference Committee on Rules and Order of Business, I am pleased to offer the following resolution:

Resolved, That this House of Delegates hereby expresses its profound appreciation for all that has been done to make the meeting we are about to conclude so very pleasant and successful.

To this end, acknowledgement is made of our gratitude to Dr. Frank P. Foster, General Chairman of the Local Committee on Arrangements, his Co-Chairman, Dr. Laurence B. Ellis, and the members of their committee, as well as the representatives of the other New England states who worked with them; to the Secretary, Dr. George F. Lull, and his capable staff for the efficiency and dispatch with which they performed their tasks; to the Massachusetts Auxiliary for its efforts in entertaining our ladies and ourselves; to the Aces and Deuces for their gracious invitation to luncheon on Tuesday; to the six New England state medical societies for their long-to-be-remembered Down-East hospitality at cocktails and dinner yesterday; to the management and staff of the Statler Hotel; to our Speaker and Vice Speaker for their smooth and impartial manner in discharging a complex and difficult assignment; and to all those less obvious but nevertheless extremely important groups and individuals whose anonymous contributions are so vital in providing the myriad details which go to make up an undertaking of this magnitude.

Statement of Dr. Bruce Underwood

Dr. Bruce Underwood, Kentucky, was granted the floor on the point of personal privilege, and addressed the House as follows:

Mr. Speaker and Members of the House of Delegates: I asked for this point of personal privilege because this is my last session in the House of Delegates. I hope that I can continue to attend the meetings, but this is my last time as a delegate. I have a feeling of deep regret for what, to me, is a deep personal loss, for I have come to appreciate and to love the members of this House and the officers and trustees, who are also members, and those who work with the House.

During this session, for some reason or other, I have thought a good deal about my own father, who was a Doctor of Medicine. His death was not entirely unexpected, but the friend who broke the news to me told me that he had been through the same experience where his father's death was not entirely unexpected, and he told me that in spite of that it was still hard to take. I have heard others stand up here and speak to this House and say goodbye and thank you, and I believe I have a better understanding now of what they went through.

I have appreciated the privilege of serving in this House and the many kindnesses you have shown to me individually. I consider serving in this House of Delegates the second highest privilege I have ever had in my life. For at least a portion of the time that I served in this House, I was the youngest delegate in the House, and, as a relatively young man, to have older men as leaders and officers of this Association be so friendly and so kind was something that I cherished. However, I feel like I am getting older. I am now a past head of some organizations, the past chairman of the Aces and Deuces, and pretty soon I shall be a past delegate of the American Medical Association. Just before I came to this meeting, someone told me a definition of an old man. He said it is somebody that is fifteen years older than you are. Some of you think that I am not even dry behind the ears yet. My own boy, twelve years old, thinks I am an old fogey belonging to what he calls the 18th Century, not the 19th Century, and he has told me so in no uncertain terms. The fact of the matter is, he had a little fever recently, and I prescribed half of a 5-grain aspirin tablet for him. He spoke to his mother with some doubt as to whether he would take it, because he thought I practiced medicine like they did in the old days. I suppose that makes me middle-aged. There are many things that I would like to say to you. This isn't the time nor the place. I have spoken to the Board of Trustees about some of them, and I want to mention them just briefly.

Doctors of Medicine were primarily responsible for the establishment of State Boards of Health in this country and for health departments. I am told that Dr. J. N. McCormack of Kentucky had a great deal to do with the early organization, the writing of the original Constitution and Bylaws of the American Medical Association. Five years ago when I began as a delegate, there were five or six members of this House who were engaged in the full-time practice of public health. One of the most outstanding was a man who was kind enough to adopt me as his nephew, and I have been calling him "Uncle Felix" ever since, and that is Dr. Felix A. Underwood, of Mississippi. I don't believe at the present time that there is any delegate from any state or territory who is engaged in the full-time practice of public health. I believe that is a fact that ought to be mentioned.

In closing, I would like one additional personal word, and I assure you it takes some degree of courage to say it, and I hope you accept it in the spirit in which it is offered. The highest privilege I have ever had in my life is to know the one whom I believe to be the Author of the Bible. The Bible, in both the Old and New Testaments, teaches that "All flesh is as grass, and all the glory of man as the flower of grass. The grass withereth, and the flower thereof falleth away, but the word of the Lord endureth forever." The Bible clearly implies that this life, so far as I am concerned, is like a drop of water in an ocean of eternity. If you know the Author of the Bible, I hope you will come to know Him better. If you do not know the Author of the Bible, I hope you will meet Him. In either event, between now and Christmas, I would urge that you read some portion of the book He wrote every day. If the Bible is right, and I believe it is, and if I love and appreciate you, and I do, I could do no less than hope that in the life to come you and I will be in heaven together, and so I say thank you and goodbye as a delegate.

The House adjourned *sine die* at 2:45 p. m., Thursday, Dec. 1, 1955.

COUNCIL ON MEDICAL SERVICE

A STUDY OF MATERNAL MORTALITY COMMITTEES

This is part 1 of a new series of articles by the Committee on Maternal and Child Care of the Council on Medical Service reviewing the organization and operation of maternal mortality study committees. The purpose of this specific study is to obtain information that may be utilized in the preparation of guides that in turn may be helpful in the development and operation of maternal mortality committees in other areas in the United States. The descriptive material to follow is concerned with the Minnesota Maternal Mortality Committee, a subcommittee of the Maternal Health Committee of the Minnesota State Medical Association.

MINNESOTA MATERNAL MORTALITY COMMITTEE STUDY

History.—The Maternal Welfare Committee of the state association in 1940 voted to recommend to the association that it request the Minnesota Department of Health to cooperate in a statewide study of maternal mortality. The following year the house of delegates officially approved such a study to be conducted under the direction of the committee in cooperation with the Minnesota Department of Health. The study began July 1, 1941, but due to lack of personnel during the war was discontinued June 30, 1942. It was resumed in 1950 and is now in its sixth consecutive year.

The essential purpose of the maternal mortality study is to provide the medical profession of Minnesota with information useful in protecting the life and health of mothers. The committee seeks to determine actual causes of maternal deaths, to classify them, to study them, and to draw conclusions that will point the way to continued reduction in maternal mortality. The committee members are selected by the Maternal Health Committee of the state medical association and are appointed by the council of the association. They serve without remuneration. The committee originally had 6 members but now has 12; 11 are obstetricians representing all areas of the state; the 12th member is the chief of the Section of Maternal and Child Health of the State Department of Health and serves as secretary. The members serve until they wish to retire; the permanent chairman is chosen by the council; and three obstetrician-investigators are employed to travel over the state to collect and study data on maternal deaths. These data are presented to the committee members who then decide on the various aspects of the maternal deaths.

Scope of Study.—The study includes all women who die during pregnancy or within the three month postpartum period, regardless of the actual cause of death. A maternal death is defined as any death associated with pregnancy (including abortion and extrauterine pregnancy) or the puerperium (for a period of three months postpartum), whether or not some pathology of pregnancy is the actual cause of death. An obstetric death is defined as one ascribed to pregnancy, childbirth, or the puerperium for a three month period as listed in chapter 11 of the Manual of the International List of Diseases, Injuries and Causes of Death but also includes chorioepithelioma regardless of the interval following pregnancy. In addition, obstetric deaths also include such associated causes as criminal abortion, anesthesia, improper obstetric care and treatment, certain heart diseases, and certain infections. The diseases of the heart (e. g., rheumatic heart disease as contrasted to coronary thrombosis) must be aggravated by pregnancy in order that a case be classified under the heading of obstetric death. The committee studies all maternal mortality cases occurring in the state and those in which patients were treated just outside of the state by Minnesota physicians. However, in the compilation of statistics, both the committee and the state health department include only those cases in which patients were residents of Minnesota.

Financing.—The state health department provides for the expense of the study. In 1954 the budget was $6,000. The obstetrician-investigators are paid $50 per day for not more than 100 days for all services performed within a year's time. In addition, clerical help is supplied by the Section of Maternal and Child Health, Minnesota Department of Health, with special clerical help provided also by the Minnesota State Medical Association.

Operation—Agencies and Personnel Involved.—The state medical society and the state department of health jointly conduct the study program with the cooperation of the state university hospital and the state hospital association. Maternal death certificates are received by the Section of Vital Statistics of the Minnesota Department of Health and photostat copies are prepared and forwarded to the Section of Maternal and Child Health. Because this routine procedure allowed considerable delay between the death of the patient and the investigation by the committee, the state department of health enacted the following regulation: "Any death associated with pregnancy (including abortion and extrauterine pregnancy), or the puerperium (for a period of three months postpartum), whether or not it is the actual cause of death, shall be reported by mail within 3 days after death to the Minnesota Department of Health, Section of Maternal and Child Health, by the attending physician and by the hospital where the death occurred." This insures prompt investigation before important details of the case may have been forgotten. In addition, since deaths occurring during the postpartum period frequently do not mention pregnancy on the death certificate, a cross matching of all female deaths of persons aged 15 through 45 with all births in the preceding three months will show additional deaths associated with pregnancy or the puerperium. Other cases are occasionally discovered through the newspapers and reports from nurses and other hospital personnel.

As soon as possible after a maternal death is reported, one of the obstetrician-investigators visits the attending

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Committee members are W. L. Crawford, M.D., chairman, Rockford, Ill.; R. B. Chrisman Jr., M.D., Coral Gables, Fla.; Philip S. Barba, M.D., Philadelphia; Harold S. Morgan, M.D., Lincoln, Neb.; J. L. Reichert, M.D., Chicago; Garland D. Murphy, M.D., El Dorado, Ark.; Howard A. Nelson, M.D., Greenwood, Miss.; and Donald A. Dukelow, M.D., consultant, Chicago.

physician, obtains the history, and discusses various aspects of the death. He visits the hospital, reviews the records, and talks with hospital personnel who came in contact with the patient. The consultant, if one had been called in, is also interviewed. If necessary the investigator may even get additional information from the relatives through the attending physician. All the data gathered are directed toward completion of the mortality study questionnaire. The obstetrician-investigator strives to be entirely objective and impersonal in his questioning and makes no comment or criticism of the handling of the case since that is the function of the committee. When he thinks it advisable, he obtains x-rays and pathological material for review by the committee. His next step is to formally put together and summarize the data after critically considering them for accuracy, completeness, and comparison of the cause of death as noted on the death certificate. In preparing his summary, the investigator may consult with nonobstetric specialists concerning the importance of complications on the course of the case. His case summary may be discussed with the chief of the department of obstetrics and gynecology of the University Hospital before it is submitted to the committee.

Data are kept confidential by means of a questionnaire with a detachable identifying sheet. This sheet contains information identifying and describing the mother, physician, consultants, pathologists, involved hospital personnel, and the infant. The detached sheet and minutes of committee meetings that contain records of committee discussions and decisions are preserved and filed by the chief of the Section of Maternal and Child Health, Minnesota Department of Health, at the request of the committee members. The original questionnaire (anonymous) is used by the department of obstetrics and gynecology of the University Hospital for teaching purposes.

The investigator presents the case summary, identifiable only by case number and the year, at the regular meeting of the committee. These committee meetings are called about every three months and usually last all day. They are closed to all except committee members, although exceptions have been made for occasional visiting obstetricians. The committee as a whole makes all final decisions. The cause of death is determined. The management of the case is critically evaluated as to adequacy of medical care during the three phases: (1) prenatal, (2) labor and delivery, and (3) puerperium. The committee makes final assessment as to the preventability of the death and the responsibility for the death; it passes on the adequacy of the autopsy and the completeness and accuracy of the death and birth certificates. After full deliberation, the committee may charge responsibility for the death to the physician, hospital, patient, disease, or any combination of these factors. Since cases are presented anonymously, free discussion and unbiased conclusions are possible.

Follow-Up and Disposition of Cases.—Copies of the case summary, including criticism of the handling of the case and the conclusions of the committee, are mailed to the responsible physician and to any involved consultant. Accompanying this material is a letter from the chairman that states his authority from the state medical society for sending the summary, notes the anonymous methods by which cases are reviewed, and invites constructive comment in furthering the work of the committee.

At the end of each 12 month period, the investigators and members of the department of obstetrics and gynecology of the University Hospital prepare a report on the year's study together with their conclusions. This report is reviewed individually by members of the study committee and is modified or approved by them as a committee before it is published as their report in the official journal of the state medical society. Reprints of the report are mailed to all members of the state society by the state department of health. From time to time editorials concerning the study are prepared and published. Papers on various phases of the study have been prepared by investigators and individual members of the committee and have been published. The obstetrician-investigators have correlated data from the study by preparing lantern slides and use these in talks to local medical societies and to hospital groups. On two occasions, the committee as a whole has appeared on local medical society programs presenting a typical case review with discussion and vote as to the final disposition of the case. The yearly reports of the study are consulted in selecting obstetric subjects for presentation at the annual sessions of the state medical association in the form of round tables, symposiums, and formal addresses. In these and other ways, members of the state medical association have been familiarized with the methods and findings of the study committee.

TABLE 1.—*Causes of Obstetric Deaths and Percentage Distribution of Deaths Considered Preventable in 1950, 1951, and 1952* *

Cause	Cases		Preventable Deaths	
	No.	%	No.	%
Hemorrhage	33	28.0	25	44.6
Toxemia	23	19.5	8	14.3
Infection	8	6.8	3	5.4
Anesthesia	7	5.9	6	10.7
Pulmonary embolism	7	5.9	0.0	0.0
Others	40	33.9	14	25.0
Total	118	100.0	56	100.0

* Minnesota Maternal Mortality Study by the Maternal Mortality Committee of the Committee on Maternal Health, Minnesota State Medical Association, table 16, Minnesota Med. 38: 14 (Jan.) 1955.

Results—Statistical Analysis.—The Minnesota maternal mortality rate was 1.68 per 1,000 live births in 1941 when the study was first conducted, whereas the United States rate was 3.2. In 1950, when the maternal study was again resumed, the rate was 0.59 per 1,000 live births and declined to 0.42 per 1,000 live births in 1952; the United States rate was 0.83 in 1950 and 0.68 in 1952. In 1953 the rate was 0.40 and provisional statistics on "obstetric" deaths for 1954 indicate a rate of 0.4 per 1,000 live births with 80,620 live births recorded (99.8% delivered by physician and 99.1% in hospitals). Table 1 shows causes of obstetric deaths and percentage distribution of total deaths considered preventable for the three year period, 1950 through 1952. An analysis of the cause of obstetric deaths shows that hemorrhage accounted for 28% of the total and almost one-half of the obstetric deaths that were considered preventable.

Hemorrhage accounted for more than three times as many preventable deaths as the next leading cause, toxemia. Some of the factors involved in the deaths due to hemorrhage include accouchement forcé, improper use of pituitary extracts during labor, and inadequate and delayed replacement of blood.

In recent years there has been a decreasing ratio of obstetric deaths in Minnesota (table 2) to deaths associated with pregnancy, but not directly due to pregnancy. Table 2 gives the actual number and percentage of obstetric and nonobstetric deaths for the years that data are available. The final maternal mortality rate is calculated on those maternal deaths classified as due to obstetric causes.

Analysis of table 3 shows a remarkable reduction in the proportion of preventable deaths since 1941. Only 25.4% of the maternal deaths studied were classified as preventable in 1953 in contrast to 73.2% in 1941, even though there were 30% more deliveries in 1953. Table 4 shows that the 15 preventable maternal deaths are from the 32 deaths classified as due to obstetric causes. Table 4 also lists the primary causes of these obstetric deaths indicating the assignment of responsibility if they were considered preventable. It is indeed significant that in 1953 hemorrhage was the cause of only 4 maternal deaths in Minnesota in contrast to 33 deaths from this cause during the previous three years.

TABLE 2.—*Maternal Deaths Classified as Obstetric and Nonobstetric in 1941 and 1950-1953*

	1941		1950		1951		1952		1953	
	No.	%	No.	%	No.	%	No.	%	No.	%
Obstetric deaths	93	83	46	67.6	39	68.4	33	56.9	32	55.3
Nonobstetric deaths	19	17	22	32.4	18	31.6	25 *	43.1	27 †	45.7

* Bulbar poliomyelitis, 11; trauma, 4; intracranial hemorrhage, 3; brain tumor, 2; leukemia, 1; suicide, 1; obstruction trachea, 1; acute glomerulonephritis, 1; thrombocytopenic purpura, 1.

† Bulbar poliomyelitis, 6; intracranial hemorrhage, 4; neoplasms, 4; peritonitis, 4; trauma, 4; unknown, 3; meningitis, 1; lupus erythematosus, 1.

TABLE 3.—*Preventability of Maternal Deaths in Minnesota in 1941 and 1950-1953*

	1941		1950		1951		1952		1953	
	No.	%	No.	%	No.	%	No.	%	No.	%
Preventable	82	73.2	22	32.4	24	42.1	10	17.2	15	25.4
Nonpreventable	27	24.1	45	66.1	32	56.1	47	81.0	44	74.6
Not determinable	3	2.7	1	1.5	1	1.8	1	1.7	0	....

Conclusion.—In Minnesota, the maternal mortality rates have shown a continuous and significant decrease during the past years. This continued reduction is due not to any one factor but includes better undergraduate training of physicians, increasing postgraduate and refresher courses in obstetrics, increasing percentage of babies born in modern hospitals, widespread use of chemotherapeutic agents, and early and adequate blood replacement. In addition, the maternal mortality study program for the education of physicians and hospital personnel, as well as public health measures, such as education of the public in the importance of early and adequate prenatal and obstetric care, are other important factors in the reduction of maternal mortality. During the course of the committee's studies, there was demonstrated the need for the improvement of inservice training, particularly in laboratory, x-ray, medical records, and anesthesia services. As a result, refresher training courses have been held at various key locations throughout the state; extension courses for laboratory aides and x-ray technicians are being conducted at the University of Minnesota, and there is an intensified recruitment program by all disciplines concerned. These activities should ultimately improve services available to the patient.

The following minimum requirements for adequate obstetric care have been adopted by the Minnesota Maternal Mortality Committee and published with the 1950 report in *Minnesota Medicine.*[1]

First prenatal visit

1. Adequate history and general physical examination with accurate follow-up of any abnormality revealed by these.
2. Pelvic mensuration to include intertuberous diameter, diagonal conjugate and palpation of sacrum and spines.
3. Laboratory workup—blood, serology for syphilis, hemoglobin, urinalysis and Rh determination.

Routine prenatal visits

1. Blood pressure determination.
2. Urinalysis, especially for albumin.
3. Weight determination.
4. Abdominal palpation during last two months of gestation.
5. Reasonably adequate study of abnormalities presenting themselves during these visits.

Labor and delivery

1. Adequate use of generally recognized obstetric procedures.
2. Observance of adequate asepsis.

Postpartum Care

1. Reasonable promptness in the recognition of abnormalities.
2. Reasonable promptness in the institution of adequate treatment.

Postmortem examination

1. Completeness in itself or as an adjunct to clinical observation.

Death certificate

1. Accuracy in assignment of cause of death.
2. Completeness of data requested.

Birth or Stillbirth certificate

1. Completeness in reporting desired data.
2. Accuracy of data.

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[1] Minnesota Maternal Mortality Study by the Maternal Mortality Committee of the Committee on Maternal Health of the Minnesota State Medical Association, Minnesota Med. 36:609 (June) 1953.

Death certificate of child

1. Accuracy in assignment of cause of death.
2. Completeness of requested data.

Through their publications the committee constantly stresses the importance of autopsies. Since many autopsies have not been done in the past because a pathologist was not available, the committee has arranged with the state department of health that a pathologist be employed when necessary. A physician in any part of the state need only notify the state health department that approval for an autopsy has been granted. A pathologist will be procured to do the job.

The efforts of the committee's study have stimulated the establishment of a maternal mortality committee and a neonatal mortality committee in Virginia and in an area in the western part of the state. Duluth has recently established a maternal mortality committee. The Hennepin County Neonatal Mortality Study Committee of the Hennepin County Medical Society was established in 1952.

Table 4.—*Primary Causes of Maternal Deaths Classified as Obstetric in 1953, Showing Preventability and Assignment of Responsibility*

			Preventable		
Cause	Total	Non-preventable	Physician	Patient	Other
Toxemia	8	4	3	1	..
Hemorrhage	4	..	4	..	..
Infection	3	1	1	..	1 (abortionist)
Anesthesia	1	1	..	..	..
Transfusion accidents	4	1	..	..	3 (2—laboratory 1—hospital)
Heart disease	4	4	..	..	..
Suicide	2	2	..	..	..
Pulmonary embolism	2	2	..	..	..
Amniotic fluid embolism	1	1	..	..	..
Pituitrin shock	1	..	1	..	..
Acute pulmonary edema	1	1	..	..	..
Diabetic acidosis	1	..	1	..	..
Total	32	17	10	1	4

It is anticipated that similar study committees will be formed in other large communities of Minnesota and that eventually the whole state will participate in perinatal mortality studies as well as maternal. Relatively few adverse situations have arisen in connection with the committee studies. After careful explanation of the purpose of the committee, the physicians concerned have generally been quite willing to cooperate in subsequent committee investigations.

Since its inception the work of the maternal mortality committee has been in the nature of professional self-criticism of a constructive type with benevolent and life-saving objectives. But it was apparent that if some information or records of the committee were to be made public, it was conceivable that a physician could be subjected to embarrassment or even to a malpractice suit based on his handling of a case. Hence it is desirable and essential to the success of the maternal mortality study program that physicians be allowed to cooperate voluntarily and completely without fear or threat of legal action based on admissions and revelations of the doctor in his willingness to aid research and further technical knowledge in this field. The 1954 Minnesota rate of 0.4 maternal deaths per 1,000 live births was very low, one of the lowest in the United States. It was felt that the rate could be reduced even more if maternal mortality studies could be continued on an open, yet protected, plane. A similar situation had occurred in regard to confidential information to be received from physicians for a cancer research study. The need for such confidential information was deemed so serious that in 1949 the legislature enacted a bill that authorized the state board of health to establish a cancer statistical research service and declared that such cancer reports as those filed with the state board of health were to be confidential, and unauthorized disclosure of any information in such records was made a misdemeanor. Therefore, in view of this precedent, an act, which pertained to research studies conducted by the state department of health and other agencies and which provided for the confidential character of such research studies, was presented to the 1955 session of the state legislature and enacted into law. This bill provides that such research studies as the state department of health may undertake are in a preferred status in regard to the treatment of its records. The bill provides that such information "shall not be admissible as evidence in any action of any kind in any court or before any tribunal, board, agency or person." Also, it provides that information on the nature and course of the studies and the results obtained therefrom may be published, but names or identifying data cannot. It in no way closes off from view information or sources thereof—it merely provides that data procured by the state department of health in connection with these studies cannot be used as a source of evidentiary facts. This bill was made general and broad so that it would be unnecessary for the state board of health to go to the legislature with new problems that might arise from studies instituted in ensuing years.

Maternal mortality studies have had a desirable psychological effect on physicians and hospital personnel as well as on the public. Physicians have become more careful, more conservative in their treatment, and request consultation earlier. Individual physicians have had honest errors pointed up, and there is every reason to believe that these will not be repeated by the person concerned. The results of these studies are used for the education and guidance of physicians at hospital staff meetings, at county medical society meetings, and at refresher courses; for undergraduate teaching at the medical school; and for publication in medical journals. The studies have supplied information that has changed the emphasis of both undergraduate and postgraduate teaching. As a result of these studies even further reduction in maternal mortality is expected.

Jaundice in Cardiac Patients.—Jaundice in cardiac patients does not occur without infarction. It can occur secondarily to cardiac cirrhosis or necrosis of the hepatic cells. Since jaundice can be overlooked in a cyanotic patient, it is important to determine the serum bilirubin in any suspect case. Another difficulty . . . is that jaundice does not appear in the skin over areas where edema is present. Once jaundice is recognized in a cardiac patient, it is extremely important to have good proof of an embolus before instituting anticoagulant therapy.—J. G. Parker, M.D., and L. Felder, M.D., Jaundice in Cardiac Failure Without Infarction, *Annals of Internal Medicine*, November, 1955.

PUBLIC RELATIONS

Doctors Honor Local Newsmen

Too often in this world the good things are taken for granted while the things we do not like get a disproportionate share of attention. This is sometimes the case where medical newswriters are concerned. To reverse this situation, many medical societies honor newsmen for excellence in medical reporting and writing.

Most recent example of this practice comes from Phoenix, Ariz. At the third annual awards dinner of the Maricopa County Medical Society, a popular Phoenix science writer, Julian DeVries, was presented an honorary associate membership in the society and a gold-plated stethoscope. DeVries, who writes for the Phoenix *Gazette* and the Arizona *Republic*, received the awards for "his effective contribution to better understanding of the medical profession through his newspaper column, news articles, and his television program, 'M.D.'s Notebook.'" This is the second award given DeVries by the society. His first, "for distinguished public service," was presented in 1953. Two other newspapermen, one from the Phoenix *Gazette* and the other from the Arizona *Republic*, also were given awards for specific stories they had written on health problems. It was the doctors' way of saying, "Thank you for a job well done."

Good press relations must be an integral part of every medical society public relations effort. Good press relations can only result when both physicians and newsmen reach a mutual understanding about their respective responsibilities where medical news is concerned. Medical societies have taken a long step in the right direction in recent years by holding medical-press dinners at which doctors and newsmen can get acquainted and talk over problems. Out of such cooperative meetings have come many formal and informal press codes of cooperation to guide both medical men and writers in handling medical stories. Awards to the men at the local level, like those given in Phoenix recently, are just one more way to build medical-press cooperation, for they are concrete indications that physicians appreciate the day-to-day services of the men who actually cover the local medical beat.

Can Your Assistant Keep a Secret?

Physicians, well indoctrinated with the Principles of Medical Ethics, know there can be no compromise with medical confidences. Any confidential information received by the doctor from a patient must remain inviolate. His office assistant may not, however, be as aware of the importance of respecting medical confidences. The doctor himself must familiarize her with those aspects of medical ethics that apply in her daily work. Careless breaches of medical ethics in this area create not only public relations problems but legal ones as well.

The physician can emphasize the importance of keeping secret information that pertains to patients by calling his assistant's attention to the section in the Principles of Ethics that says: "Patience and delicacy should characterize the physician. Confidences concerning individual domestic life entrusted by patients to a physician and defects in the disposition or character of patients observed during medical attendance should never be revealed unless . . . required by the laws of the state."

Public relations and legal aspects intermingle when a curious patient, for example, asks the doctor or assistant personal questions about other patients. Without giving offense, those in the office must firmly refuse to provide such information. A tactful, courteous refusal will discourage further questioning. Confidential papers, case histories, and even the appointment book should be kept out of reach of curious eyes—to protect the patient as well as the doctor and his aides. The doctor-patient relationship is of such stature that every action of the physician and his aides should be devoted to enhancing it. This is the actual aim of nearly every medical public relations effort.

PRoblem Corner

"Medical care costs too much." Every physician hears this complaint, directly or indirectly, from his patients, his neighbors, or others in his community from time to time. What can he as an individual physician do to combat such criticism? Misunderstanding between the doctor and his patient in regard to medical expenses creates a real public relations problem. One study recently showed that, though many persons felt the cost of medical care was high in relation to the services received, none had a crystallized idea of what they should be getting. Naturally, people are reluctant to pay for medical and hospital care. They did not ask to be sick. They are forced into paying for an unwanted service. Furthermore, once a patient is well, his gratitude for medical services wanes rapidly. As long as human nature continues to operate in the traditional fashion, patients probably will continue to say about doctors: "After all, all he did was make me well!"

A better understanding of medical and hospital services and their cost is obviously necessary. The plaque that the A. M. A. sells to physicians to encourage advance fee discussions is one technique for achieving this understanding. The newest A. M. A. leaflet, "To All My Patients," which is being provided in quantity to A. M. A. members, is designed to help physicians explain various aspects of medical care and its costs. The individual physician himself must share in the responsibility of organized medicine for pointing out to individuals that, actually, medical costs have not risen as fast or as high as other consumer costs. In reality, the patient gets more for his medical care dollar today than ever before because of improved medical techniques, new medicines, and treatments that cut illness time considerably.

But how many patients know that the physician's share of the medical care dollar is constantly dwindling? In 1929 he received 33 cents of each medical dollar; today he gets only 28 cents. The dentists' share, too, has shrunk from 16 cents to 10 cents. The hospital's share of the medical care dollar, however, has jumped from 14 cents in 1929 to 26 cents in 1954. Other medical expenses that took 17 cents in 1929 take about 20 cents today. It is up to the individual physician not only to help tell this story but also to encourage his patients to consider medical expenditures as investments in good health and a longer, more productive life.

MEDICAL NEWS

ALABAMA

Reopen Physical Therapy Unit.—The physical therapy unit of the University of Alabama Medical Center is scheduled to reopen about Jan. 1, 1956. The facility, located in University Hospital, has been closed since 1951. Among the agencies cooperating with University Hospital to reactivate the unit are the local chapter of the Alabama Society of Crippled Children and Adults, the Multiple Sclerosis Society, the State Vocational Rehabilitation Service, the Muscular Dystrophy Association, United Mine Workers Welfare and Retirement Fund, the Institute for the Handicapped, and the National Foundation for Infantile Paralysis.

University News.—The Medical College of Alabama, Birmingham, announces that Dr. James Garland Wood, assistant professor and acting chairman of the department of radiology, has been promoted to associate professor. Dr. Louis S. Graham has been appointed associate professor of pathology; Dr. William Nicholson Jones, professor and acting chairman, department of obstetrics and gynecology; Dr. Frank S. Moody, chairman, department of otolaryngology (voluntary basis); Dr. Josiah C. Carmichael, associate professor and chief, obstetrics section, obstetrics and gynecology; Dr. Waldo Philip Hitchcock, associate professor of anesthesiology; Dr. E. Edward Evans, associate professor of microbiology; Drs. Irwin Schoen, Robert E. Roth, and Harold Schneider, assistant professors of pathology; Dr. Jolyon S. Tucker, assistant professor of clinical neurology, psychiatry, and neurology; Dr. Thomas Joseph Reeves, associate professor of medicine; and Dr. James N. Sussex, associate professor of psychiatry.——Dr. Melson Barfield-Carter, professor and chairman of the department of radiology since 1945, retired Aug. 1, as did Dr. James R. Garber, professor of obstetrics and chairman of the department of obstetrics since 1945.

CALIFORNIA

Hospital News.—The second term (academic year 1955-1956) of the training course for personnel concerned with the care of cerebral palsied children will begin at Children's Hospital in San Francisco Feb. 1. This will be the second year of this training program supported by the United Cerebral Palsy Association in this hospital. For information, write to: Dr. Luigi Luzzatti, Children's Hospital, 3700 California St., San Francisco.

Psychiatric Case Seminar.—Open to qualified practicing psychiatrists, an advanced psychiatric case seminar will meet on Wednesdays, 8-10 p. m., Feb. 1-March 21, 1956, in room 108, Old Religious Conference Building at the University of California at Los Angeles. Requests for information should be made to Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, University of California Medical Center, Los Angeles 24. The fee for the course, which is limited to 20 students, is $60.

Course in Pathological Physiology.—The University of California Extension, Los Angeles, will open to graduates of approved medical schools a course in pathological physiology (fee, $50), which will meet Mondays, 7:30-9:30 p. m., beginning Jan. 30, 1956, in room 12-096 of the university's medical center. The course is designed to aid practicing physicians in understanding and applying to their clinical problems certain relatively recent physiological concepts concerning the pathogenesis of disease. The effects of therapeutic procedures, particularly as they cast light on the physiological processes under discussion, will also be considered, according to Dr. Victor E. Hall, chairman. Requests for information should be made to Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, University of California Medical Center, Los Angeles 24.

CONNECTICUT

University News.—Dr. Aaron B. Lerner, since 1952 associate professor of dermatology at the University of Oregon Medical School, Portland, has been appointed to the same position at the Yale University School of Medicine, New Haven, where he will also serve as head of the section of dermatology. Dr. Lerner was assistant professor of dermatology at the University of Michigan Medical School, Ann Arbor, from 1949 to 1952.——Dr. Harold M. Frost Jr., Buffalo, has been named assistant professor of orthopedic surgery at the Yale University School of Medicine.

Lectures on Medical Economics.—Dr. Creighton Barker will serve as moderator for the session on state license and specialty boards, presented by the Connecticut State Medical Society and the department of public health, Yale University School of Medicine in Brady Auditorium (310 Cedar St., New Haven) on Jan. 5, 4 p. m. "The State License" will be discussed by Dr. Louis P. Hastings, Hartford, member, Connecticut Medical Examining Board; "National Board of Medical Examiners," by Dr. John P. Hubbard, Philadelphia, executive secretary, National Board of Medical Examiners; and "Specialty Boards" by Dr. Courtney C. Bishop, Yale University School of Medicine, New Haven.

DELAWARE

State Medical Election.—Newly elected officers of the Medical Society of the State of Delaware include: Dr. Glenn W. M. Van Valkenburgh, Georgetown, president; Dr. Roger Murray, Wilmington, president-elect; Dr. John B. Baker, Milford, vice-president; Dr. Norman L. Cannon, Wilmington, secretary; and Dr. Charles Levy, Wilmington, treasurer.

DISTRICT OF COLUMBIA

Physicians Honored by Cuba.—On Dec. 3 President Fulgencio Batista of Cuba bestowed the Order of Merit of Carlos Finlay on Dr. Francis M. Forster, dean, Georgetown University School of Medicine and professor of neurology, and Dr. Felipe A. Martinez, associate professor of anatomy. Dr. Forster has lectured at a number of hospitals in Cuba and served last summer as a visiting professor of neurology at the University of Havana Faculty of Medicine and Pharmacy. Dr. Martinez, a native of Cuba and an alumnus of the Georgetown medical school in Washington, D. C., was cited for his 10 years' work in anatomy at the university and for his devotion to Pan-American medicine.

Personal.—Dr. W. Montague Cobb, head, department of anatomy, Howard University College of Medicine, Washington, D. C., has been awarded the honorary degree of doctor of science by his alma mater, Amherst (Mass.) College. He was cited as a "teacher, scholar, scientist, and physician." Dr. Cobb has contributed to medical literature on such subjects as the effects of aging on the human skeleton, graphic techniques of teaching anatomy, and the physical anthropology of the American Negro.——Dr. Fred L. Soper, Washington, D. C., director, Pan American Sanitary Bureau, Regional Office of the World Health Organization, was awarded an honorary degree by Jefferson Medical College of Philadelphia on Sept. 23. The citation noted that "as director of the Pan American Sanitary Bureau, Dr. Soper has used his enormous administrative talents toward coordinated effort in the Americas in the field of public health."

FLORIDA

Hospital News.—The dean's committee of the Veterans Administration Hospital of Coral Gables has been reconstituted to consist of Homer F. March, Ph.D., dean of the University of Miami School of Medicine, Coral Gables, as chairman, and Drs. John J. Farrell, Ralph Jones, and William A. D. Anderson,

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

chairmen of the school's departments of surgery, medicine, and pathology, respectively, as members. Dr. Edward F. Zimmerman, chief, professional services of the hospital, was designated as the manager's representative to the committee.

Cardiac Work Classification Unit.—The Heart Association of Greater Miami announces the opening of a cardiac work classification unit at Jackson Memorial Hospital, Miami, as part of the community service program of the association. The purpose of the unit is to evaluate the ability of the individual with heart disease to work at gainful employment. Patients referred to the unit will receive a complete examination to establish the cardiac diagnosis and degree of work ability. The problems of each patient are considered in conference by the entire group, and specific recommendations are made to the referring physician. The unit does not function as a diagnostic clinic nor does it prescribe treatment. Patients may be referred to the unit only by physicians. There is no charge for the service. Information may be obtained by calling the Heart Association of Greater Miami, telephone 2-3337.

GEORGIA

Personal.—Dr. Jesse C. Dover, Clayton, who has served in Rabun County for over 50 years, was honored Aug. 26 with a "Dr. Dover Birthday Party." About 300 people attended the party, which celebrated his 80th birthday. The program included a skit in which various events in the doctor's life were acted out. Dr. and Mrs. Dover were presented with a silver tea service.

Name Chief of Ophthalmology.—Dr. John R. Fair has been appointed assistant professor of surgery and chief of ophthalmology at the Medical College of Georgia, Augusta. Dr. Fair, who was formerly assistant director of the Ocular Research Unit, Walter Reed Army Medical Center, Washington, D. C., in 1954 served as chief of the eye section of the Army's 98th General Hospital in Germany, a post from which he resigned with the rank of Lieutenant Colonel.

ILLINOIS

Psychiatric Lecture.—Dr. Franklin G. Ebaugh, clinical professor of psychiatry, University of Colorado School of Medicine, Denver, will present "The Management of the Depressed Patient" Jan. 4, 1956, 8 p. m., at the North Shore Health Resort, 225 Sheridan Rd., Winnetka. All physicians are cordially invited.

Chicago

Multiple Sclerosis Clinic.—The Chicago chapter, National Multiple Sclerosis Society (53 W. Jackson Blvd.), announces the recent opening of a clinic for multiple sclerosis patients at St. Luke's Hospital, under the direction of Dr. Roland P. Mackay, assisted by Dr. Donald D. Layton, resident neurologist at St. Luke's. Sessions are conducted on Tuesday mornings and on Friday afternoons. Applicants should request referral or sanction from their physician before applying for admission. Any member of the Chicago chapter of the National Multiple Sclerosis Society or patients residing within the metropolitan area of Chicago may apply for admission. For a clinic appointment call the Morton Clinic, HA 7-5000, and ask for Miss Dana or Miss Gilham.

Founders' Day Awards.—Awards for high scholastic averages and meritorious research were presented during the 98th founders' day ceremonies at Northwestern University Medical School to the following: Dr. Arthur L. Norins, Park Ridge, Ill., winner of the Borden undergraduate research award in medicine ($500 and a certificate), given to a student in the graduating class who performed meritorious medical research while an undergraduate medical student; Edwin L. Cohen, Toledo, Ohio, winner of the James P. Simonds award ($50 and a certificate), established this year by Phi Chi fraternity in honor of Dr. James P. Simonds, emeritus professor and chairman of the department of pathology at the medical school, for clinical achievement and promise as shown in the first study of clinical medicine in hospitals during the junior year; and Donald M. Hopkins, Walnut, Ill., winner of the George J. Dennis Phi Rho Sigma award ($100 and a certificate) for the highest scholastic average in studies during the first three years of medical school. A certificate of recognition was given to Phi Delta Epsilon as the medical fraternity maintaining the highest scholastic average for the year, and Dr. Melvin P. Firestone, of Jersey City, N. J., received a $50 bond as the student in the fraternity who contributed most toward winning the award. Edward H. Cornell, Park Ridge, Ill., was winner of the $50 Leslie B. Arey award, established by Phi Beta Pi in honor of Leslie B. Arey, Ph.D., professor and chairman of the department of anatomy, and given to the freshman student with the highest grade in anatomy studies.

MICHIGAN

State Medical Society Election.—Newly elected officers of the Michigan State Medical Society include: Dr. William S. Jones, Menominee, president; Dr. Arch Walls, Detroit, president-elect. Dr. L. Fernald Foster, Bay City, is secretary, and Dr. William A. Hyland, Grand Rapids, is treasurer of the society.

Fertility Center.—A new fertility center has been established at the Woman's Hospital, Detroit, under the joint sponsorship of the hospital and Wayne University College of Medicine. Dr. Robert B. Leach, assistant professor of medicine at the college, is medical director. Couples will be accepted in the center only when referred by practicing physicians.

Otolaryngology Conference.—The department of postgraduate medicine at the University of Michigan Medical School, Ann Arbor, will hold an otolaryngology conference at the University Hospital, April 19-21, 1956, under the direction of Dr. Albert C. Furstenberg, chairman, department of otolaryngology. Guest lecturers, together with members of the staff of the department of otolaryngology, will participate in the program. For information, write to Dr. John M. Sheldon, Director, Department of Postgraduate Medicine, University Hospital, Ann Arbor.

MINNESOTA

Dr. Barr Succeeds the Late Dr. Chesley.—Dr. Robert N. Barr, Minneapolis, who worked closely with the late Dr. Albert J. Chesley for 21 years, has been appointed secretary and executive officer of the Minnesota Department of Health. Dr. Barr, Minnesota's fifth health officer since the state board of health was founded in 1872, is a consultant to the national advisory committee on heart disease control and a member of the national advisory committee on functional study of public health nursing, both committees of the U. S. Public Health Service, and serves the subcommittee on chronic disease, Association of State and Territorial Health Officers, and the committee on aging of the American Public Welfare Association.

Clergymen's Workshop on Psychiatric Problems.—For the third year, the Hamm Foundation of St. Paul has made a grant to the St. John's Institute for Mental Health at Collegeville, which assures the continuation of the institute's program of summer workshops for clergymen of all faiths who wish to study psychological and psychiatric problems. The summer clinics, which have pioneered in bringing together clergymen of all faiths for the study of mental health problems, were attended last year by 123 priests and ministers, who came from 17 states, 2 Canadian provinces, the Bahama Islands, Puerto Rico, and France. The faculty included four presidents of the American Psychiatric Association or the American Orthopsychiatric Association. Chairman of the board of the institute is Dr. Hyman S. Lippman, director of the Amherst H. Wilder Child Guidance Clinic of St. Paul.

NEBRASKA

Crippled Children's Clinics.—Clinics for crippled children have been scheduled at the Norfolk State Hospital in Norfolk, Jan. 7, 1956, and St. Mary Hospital, Scottsbluff, Jan. 21.

University News.—Three stones, inscribed "Omaha Medical College," a gift of Dr. Frank L. Dunn, constitute the first building materials for the new hospital unit of the University of Nebraska College of Medicine in Omaha. The stones, salvaged from the Omaha Medical College, which was incorporated into the University of Nebraska medical education program in 1901, were found recently in the basement of a wrecking company which tore down the building in the early 1930's. According to Dr. James P. Tollman, dean of the college of medicine, the stones will be set into an inner wall of the new hospital building to commemorate the beginning of formal medical education.

Personal.—Dr. Clarence Minnick and Dr. Benjamin F. Stewart, Cambridge, were jointly honored by the Cambridge Chamber of Commerce at a dinner, at which Dr. Earl F. Leininger, McCook, gave an address. Dr. Minnick has practiced medicine for 50 years and Dr. Stewart for 55.——Dr. William L. Howell, who has served the Hyannis area for 41 years, was recently honored at a dinner given by 500 residents of the area, who presented him with a 1956 Oldsmobile. Dr. Howell, who was in the Army Medical Corps during World War I, has been a member of the school board of Hyannis for 21 years and its chairman during the last 19 years. He also served eight years on the town council.

NEW YORK

County Society Honors Father and Son.—At its annual meeting, the Madison County Medical Society presented to Dr. John D. George Sr., Verona, the Doctor Milton R. Joy Memorial award for service to the people and medical profession in Madison County, and elected Dr. John D. George Jr., Verona, vice-president. The senior Dr. George, father of four physician sons, has practiced for over 50 years.

Tuberculosis Campaign.—According to a joint statement by the departments of health, hospitals, and welfare of New York City and the Brooklyn, Queensboro, and New York tuberculosis and health associations, the prevention and control of tuberculosis is one of the costliest health problems in New York City. The statement says that, "In dollars and cents, a conservative estimate of the annual cost of tuberculosis in New York City is $50,000,000." Prevention and practical control are said to be impeded by four major obstacles: (1) absence of warning signals in early tuberculosis (in 1954, of the 6,582 New Yorkers reported to have newly discovered tuberculosis, 4 out of 5 had the disease in moderately or far-advanced form when detected. In addition, about 10,000 New Yorkers have the disease without knowing it); (2) lack of adequate housing and proper nutrition for large numbers of persons; (3) length of time required for cure; (4) lack of sufficient rehabilitation and community services to facilitate the patient's return to a useful, productive life.

University News.—Dr. Richard T. Beebe, chairman, department of medicine, Albany Medical College, announces the appointment of Dr. Joseph John Russo as assistant professor of dermatology and of Dr. Leonard D. Policoff, formerly of Richmond, Va., as associate professor of physical medicine and rehabilitation, head, subdepartment of physical medicine and rehabilitation in the department of medicine, and assistant professor of medicine. Dr. Donald W. Drew has been promoted from instructor to assistant professor of medicine and Dr. Frank C. Maxon Jr. from instructor in medicine to assistant professor of medicine and head of the subdepartment of pulmonary diseases. ——Dr. Thomas N. A. Jeffcoate, professor of obstetrics and gynecology, University of Liverpool (England) began a month's visiting professorship of obstetrics and gynecology at the State University of New York College of Medicine at New York City, Brooklyn, on Nov. 7. Dr. Jeffcoate delivered the Sir Arcot Mudaliar Lectures in Madras, India, this year and recently completed a visiting professorship at the Royal Prince Albert Hospital in Sydney, Australia. He presently holds appointments at the Liverpool Royal Infirmary, the Liverpool Maternity Hospital, and the Mill Road Maternity Hospital in Liverpool. ——Dr. Matthew Z. Levy has been promoted from assistant professor to associate professor of physiology at the Albany Medical College of Union University. Dr. Levy, who has been on the staff of Albany Medical College since 1952, previously taught in the department of physiology at Western Reserve University School of Medicine, Cleveland.

New York City

Lecture on Neoplastic Diseases.—On Jan. 6 at 3 p. m. "The Role of Hypophysectomy in Cancer of the Breast" will be discussed by Dr. Bronson S. Ray, chief, department of neurosurgery, New York Hospital, and professor of clinical surgery, Cornell University Medical College, in the West Basement Conference Hall at Montefiore Hospital.

Meeting of Cancer Society.—The New York Cancer Society will meet at 8:30 p. m., Jan. 3, 1956, at the New York Academy of Medicine, Fifth Avenue at 103rd St. The following program will be presented:

Investigative Trends in Chemotherapy in Treatment of Melanoma, Sidney Farber, Children's Cancer Research Foundation, Boston.
Current Concepts in the Treatment of Melanoma, Stephen L. Gumport, New York University Post-Graduate Medical School.
Melanoma of the Conjunctiva, Algernon B. Reese, Eye Institute, Columbia-Presbyterian Medical Center.
Discussion, Arthur Purdy Stout, Francis Delafield Hospital, Columbia-Presbyterian Medical Center.

Physicians and medical students are cordially invited to attend.

Dr. Edwards Goes to Yale.—Dr. Herbert R. Edwards, executive director, New York Tuberculosis and Health Association, since 1947, has resigned to become associate professor of medicine and public health, a newly created post at the Yale University School of Medicine, New Haven, Conn. Dr. Edwards will also be consultant on tuberculosis at the Grace-New Haven Community Hospital, where he will direct a William Wirt Winchester Clinic. Dr. Edwards served as clinical instructor in medicine at the Yale school of medicine from 1928 to 1934. In 1926 and 1927 he was medical consultant on a Department of Interior survey of Indian affairs. From 1942 until this year, he was assistant professor of public health at Cornell University Medical College.

NORTH CAROLINA

Memorial Lectureship.—On Nov. 8 the Chi Theta chapter of Phi Rho Sigma at the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, sponsored the first annual Herbert M. Vann Memorial Lectureship. Dr. Vann, professor of anatomy for more than a quarter of a century, participated actively in affairs of the fraternity as faculty advisor, both on the campus at Wake Forest and after the school of medicine was expanded and moved to Winston-Salem. Joseph Eldridge Markee, Ph.D., professor and chairman of the department of anatomy at Duke University School of Medicine, Durham, was the first lecturer in the annual series.

Personal.—Dr. Emery C. Miller, instructor in internal medicine, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, has assumed his duties as director of the outpatient department of the North Carolina Baptist Hospital, Winston-Salem, replacing Dr. Charles E. Richards, who has returned to his home state of Nebraska as associate professor of internal medicine at the University of Nebraska, Omaha. Dr. Miller served in Korea and has held appointments as fellow and resident in the Joslin Clinic in Boston and as fellow in internal medicine in the Bowman Gray School of Medicine.——Dr. Lorant Forizs, clinical director, North Carolina alcoholic rehabilitation program, has accepted the position of clinical director with the Florida alcoholic rehabilitation program. Dr. Forizs has served as clinical director for the state hospital in Butner and as clinical assistant professor of psychiatry at the University of North Carolina School of Medicine, Chapel Hill, and has been a lecturer at the Duke University School of Medicine, Durham, and the Yale Summer School of Alcohol Studies, New Haven, Conn. A Hungarian by birth, he held a professorship at Budapest University and fled to Germany before the Russian occupation. Slated to emigrate from Munich, Germany, to America as a displaced person, he had been asked to obligate himself to work a year as a farm laborer in Minnesota. However, through the help of the 98th General Hospital, U. S. Army, where he worked as a civilian psychiatrist, he came to the attention of the North Carolina state hospital program. He expects to make his home in Avon Park, Fla.

OREGON

Hospital News.—The University of Oregon Medical School announces that the University Hospital, which was originally scheduled to admit its first patient in January, will open in

March. Dr. Charles N. Holman has been named medical director and administrator of the University Hospital and Dr. R. Jarvis Gould, administrator of Multnomah Hospital. Dr. Gould, who was named assistant medical director of hospitals and clinics in 1950, will maintain this position as well as his new one. In addition to his new duty, Dr. Holman will continue in his present capacity as medical director for Multnomah Hospital, the University State Tuberculosis Hospital, Doernbecher Memorial Hospital for Children, and the Outpatient Clinic, Portland.

RHODE ISLAND

Dr. Michael Sullivan Honored.—The city of Newport recently dedicated in the name of Dr. Michael H. Sullivan, past-president of the Rhode Island Medical Society, one of the newest schools in the state, a half-million-dollar elementary school that will also serve as a training school for students of Salve Regina College, Newport, who are entering the teaching profession. Dr. Sullivan has been chief of obstetrics at Newport Hospital for more than 50 years.

TEXAS

Personal.—Dr. William M. Campbell, Weatherford, was recently honored when the name of Parker County Hospital was changed to Campbell Memorial Hospital.——Dr. David S. Stayer, Irving, has been appointed to succeed Dr. Wendel A. Stiles, Dallas, who has resigned as a member of the state board of medical examiners. The appointment is for a term to expire April 13, 1957. Dr. Stayer's wife is Dr. Irene M. Stayer.

Visiting Lectureship.—A visiting lectureship has been sponsored by the Texas Radiological Society for the University of Texas School of Medicine, Galveston, Baylor University College of Medicine in Houston, and the Southwestern Medical School of the University of Texas, Dallas. Dr. Franz J. Buschke, Seattle, guest lecturer for the first group of lectures, to be given in January, 1956, will have as his subject, "The Role of Common Sense in Cancer Therapy." Information concerning the date and time of each lecture may be obtained from Dr. Roscoe P. O'Bannon, Fort Worth, secretary-treasurer, or Dr. Martin Schneider, Galveston, president.

Chair in Cardiology.—The University of Texas Postgraduate School of Medicine announces the establishment of the James J. and Una Truitt Chair in Cardiology and its sponsorship of a course in practical bedside cardiology, to be given by Dr. Samuel A. Levine, clinical professor of medicine at Harvard Medical School, Boston, March 14-17, at Houston. Co-sponsors include the Baylor University College of Medicine and the Houston Heart Association. The course will feature the recognition and management of the most common cardiovascular problems in practice. Information may be obtained from the University of Texas Postgraduate School of Medicine, Texas Medical Center, Houston 25.

VIRGINIA

Personal.—Dr. Edward E. Haddock, Richmond, will begin his first term as state senator when the General Assembly convenes in January, 1956. Dr. Haddock has served as a member of the City Council of Richmond and as mayor of Richmond.

Oto-Ophthalmologic Congress.—The Gill Memorial Eye, Ear and Throat Hospital, Roanoke, will hold its 29th annual spring congress in ophthalmology and otolaryngology and allied specialties in Roanoke April 2-7, 1956. Among the guest speakers will be Drs. Rudolf Aebli, New York; Samuel Blank, Philadelphia; John E. Bordley, Baltimore; Virgil G. Casten, Boston; Jack S. Guyton, Detroit; Bayard T. Horton, Rochester, Minn.; Curwood R. Hunter, Cincinnati; John R. Lindsay, Chicago; John E. Magielski, Ann Arbor, Mich.; Stephen J. H. Miller, London, England; Peter A. N. Pastore, Richmond; Herbert J. Rinkel, Kansas City, Mo.; C. Dwight Townes, Louisville, Ky.; Everett R. Veirs, Temple, Texas; and Henry P. Wagener, Rochester, Minn.

WISCONSIN

University Honored.—In a survey of the last 50 years of American medical progress, the American Foundation has cited the University of Wisconsin, Madison, for pioneering in many phases of medical research. Some of the major projects given particular attention are the fundamental work of bacteriologists on nutrition and metabolism of bacteria, work in plant pathology, genetics, human and animal nutrition, the work that led to the discovery of vitamin B_2, heart and cancer research, hormone physiology, the development of bishydroxycoumarin, and work at the Enzyme Institute.

ALASKA

Changing Mortality Rates.—According to Dr. C. Earl Albrecht, Juneau, commissioner of health, Alaska Board of Health, the tuberculosis death rate among the natives dropped from 584.3 per 100,000 population in 1949 to 225.1 in 1954. Accidents are now the chief cause of death, with the proportion of accidental deaths being nearly three times that of the states. Heart diseases are in second place and tuberculosis in third. The territory's births have almost doubled since 1950, with 7,040 recorded in 1954. There were 1,232 deaths reported in 1950 as compared with 1,195 in 1954. The 1950 population figure was 137,000 while last year's was (estimated) 208,000.

Personal.—Two second-generation physicians, having finished their hospital training in the states, are now in Alaska to join their respective fathers in the practice of medicine. Dr. R. Holmes Johnson, who is practicing with his father, Dr. A. Holmes Johnson in Kodiak, was named intern of the year by the Methodist Hospital attending staff in New York City. Dr. J. Donald Rude is established in Juneau with his father, Dr. Joseph O. Rude, and also with Dr. John H. Clements. Dr. Rude served his externship in the Permanente Hospital (now Kaiser Foundation Northern Hospital) in Vancouver, Wash., and his internship at Rochester (N. Y.) General Hospital. During the war he served three years with the Navy in the Pacific.

GENERAL

UNESCO Aids Standardization of Anatomic Terms.—Over 5,600 standard terms in anatomy, printed with the assistance of UNESCO in French, English, and German, were adopted recently in Paris by the International Congress of Anatomists. The result of 60 years' work by anatomists, the "Nomina Anatomica" will greatly facilitate the exchange of information on latest developments in medical science and will eliminate much of the confusion caused by the fact that previously the same structure was often known by three or four different names. The new standard list, which has been distributed to all national anatomical societies, will be of particular worth to specialized branches of surgery.

Prize for Essay in the History of Medicine.—Mr. and Mrs. Henry Schuman of New York offer annually a prize of $250 for an original essay written in English, not to exceed 10,000 words, on some subject pertaining to the history or philosophy of medicine. The essayist must be a doctor of medicine or of one of the medical sciences who has taken his or her M.B., M.D., or Ph.D. degree not more than five years before submission of the paper. The competition is open to candidates of any country. Essays that have won awards in other contests are not eligible. The prize-winning essay will be published in the *Journal of the History of Medicine.* Entries should be submitted on or before May 1, 1956, to Dr. John F. Fulton, Yale University School of Medicine, 333 Cedar St., New Haven 11, Conn.

Symposium on Atomic Energy.—A symposium, "Atomic Energy and Agriculture," sponsored by the Oak Ridge (Tenn.) Institute of Nuclear Studies and the American Association for the Advancement of Science, was presented Dec. 22-29 at the Municipal Auditorium, Atlanta, Ga., under the chairmanship of Cyril L. Comar, Ph.D., chief, biomedical research, Oak Ridge Institute of Nuclear Studies. The Thursday afternoon session included discussions on radiation facilities designed to process commercial quantities of food products; the design of a megacurie radiation source; the effect of irradiation sterilization on protein, carbohydrate, and fat with particular reference to their nutritive value; toxicological studies on food sterilized by ionizing radiations; present-day status of radiation sterilization; and feasibility of food irradiation.

International Research Council.—Dr. Hamilton Cameron, New York City, who in January, 1953, became one of 600,000 hemiplegic aphasics, recently incorporated the International Research Council, the first world-wide medical confraternity for the dissemination of knowledge concerning aphasias associated with hemiplegia. The aims of the council include: the coordination of factual clinical data regarding the classification of aphasia; the establishment of a clearing house on the subject; publication of a monthly *Review-Bulletin;* the building of a library of books, publications, and reprints concerned with this specialized subject; and the securing of funds for the continuance of its work by voluntary subscription. Information may be obtained from Dr. Hamilton Cameron, Founder and General Director, 601 W. 110th St., New York City 25.

Essay Contest.—The Council on Undergraduate Medical Education of the American College of Chest Physicians offers three cash awards ($250, $100, and $50) annually for the best contributions prepared by undergraduate medical students on any phase in the diagnosis and treatment of chest diseases (heart and/or lungs). The winning contributions for 1956 will be announced at the 22nd annual meeting of the American College of Chest Physicians in Chicago, June 7-10, 1956. The following conditions must be observed: (1) completion of an application form, which may be obtained by writing to the Executive Director, American College of Chest Physicians, 112 E. Chestnut St., Chicago 11; (2) submission of five copies of the manuscript typewritten in English (double-spaced) to the college offices in Chicago not later than April 10, 1956; and (3) identification of the author by a motto or other device on the title page and a sealed envelope bearing the same motto on the outside and with the name and address of the author enclosed.

Medical Research Group Honors Transatlantic Airline.—The Animal Care Panel of the National Society for Medical Research recently presented Seaboard & Western Airlines, pioneer transatlantic all-cargo carrier, an award for its role in the air transport of animals used for medical research. In presenting the award, Nathan R. Brewer, D.V.M., in charge of central animal quarters at the University of Chicago and president of the panel, stated that his group, composed of technical and professional people interested in the care and handling of laboratory animals, believes "that man owes a responsibility to animals used for his benefit, and laboratory animals have contributed and continue to contribute an immense store to human knowledge and welfare." The award read, in part, "For facilitating medical research and medical progress through efficient and excellent care of vitally needed laboratory animals." Seaboard & Western played a prominent role in the air movement of rhesus monkeys used in the development and production of the Salk vaccine.

New Quarterly on Mental Health.—The first issue of a quarterly journal, *Behavioral Science,* official publication of the new Mental Health Research Institute at the University of Michigan, Ann Arbor, will appear in January, 1956. It will contain articles on general theories of behavior and on empirical research specifically oriented toward such theories. An interdisciplinary approach to problems of behavior will be stressed. Although the scope of the journal will include all aspects of behavior that can be subsumed under broadly general interdisciplinary theory, special emphasis will be placed on contributions relating to research in mental health and disease. The editorial board will include the following physicians: Dr. Franz Alexander (psychoanalysis), Dr. Ralph W. Gerard (neurophysiology), Dr. James G. Miller (psychology and psychiatry), Chicago, and Dr. Raymond W. Waggoner, Ann Arbor (psychiatry). Subscriptions will be $6 a year. Manuscripts and subscriptions may be sent in care of Dr. James G. Miller, Mental Health Research Institute, University of Michigan, Ann Arbor, Mich.

Leukemia Society Grants.—In announcing recent grants in aid for leukemia research projects in the United States and England, Mrs. Rudolph Roesler de Villiers, president of the Leukemia Society, Inc., pointed out that the disease is today the fourth largest killer of children in New York City, with proportionately high incidence in other parts of the country. The grants, totaling $4,000, the first of a series that the society has instituted since changing its name from Robert Roesler de Villiers Foundation, Inc., mark the organization's broadening of scope consistent with the world-wide aspects of the disease. Awards were made to Drs. James F. Holland and Avery A. Sandberg, associate chiefs of medicine at Roswell Park Memorial Institute of Buffalo, to pursue their studies of the biochemical characteristics of the disease; Dr. Robert F. Schilling, assistant professor, department of medicine, University of Wisconsin Medical School, Madison, for studies of human bone marrow in relation to leukemia; Dr. Stuart C. Finch, Yale University School of Medicine, New Haven, Conn., to continue studies on the transmittal of leukemia in rats; and Dr. Robert H. Mole of the Atomic Energy Research Establishment, Harwell, England, for studies on the effects of irradiation on leukemia.

Group Studies Poliomyelitis Vaccination.—The Study Group on Poliomyelitis Vaccination called by the World Health Organization for a recent meeting in Stockholm, Sweden, reports that about 10 million children in five countries have been vaccinated against poliomyelitis with no ill effects, apart from the comparatively few cases in the United States that were traced to the use of certain batches of faulty vaccines. According to the study group, whereas vaccine of the Salk type has been shown to give good protection to children between the ages of 6 to 10 years, this is the only age group for which sufficient evidence is available to allow a definite opinion to be expressed. It is not yet possible to say how long the immunity conferred by vaccination can last. A 40-page report prepared by the group will be submitted to the director-general of the World Health Organization, who will decide how it can best be used for the guidance of health authorities all over the world. The group included Drs. Alexander D. Langmuir, chief epidemiology branch, Communicable Disease Centre, Atlanta, Ga.; Prof. John R. Paul, Yale University School of Medicine, New Haven, Conn.; and Dr. Albert B. Sabin, Children's Hospital Research Foundation, University of Cincinnati College of Medicine.

Mortality Figures.—According to the Metropolitan Life Insurance Company, 1 Madison Ave., New York City, the experience of its industrial policy holders indicates that prevailing mortality among Americans in the middle and later age groups is much lower than two decades ago. Among those insured, the death rate from all causes for white men at ages 45-74 fell from 29.9 per 1,000 in 1935 to 22.5 in 1954, a decline of 25%. The corresponding decrease among white women was even greater—from 21.6 to 12.2 per 1,000, or nearly 45%. For each sex, the relative improvement in mortality was somewhat greater at ages 45-54 than at the later ages. The greatest reductions in mortality have been recorded for the infectious diseases, reflecting the revolutionary advances made in their treatment with the newer drugs and antibiotics. The death rates from pneumonia and influenza and from tuberculosis at the ages past midlife have fallen to fractions of what they were 20 years ago. Great progress has also been made in reducing the mortality from diseases of the heart and kidneys. Between 1935 and 1939 and 1950 and 1954, the decrease was about 30% among the insured women in each age group within the 45-74 range; among the men the reduction in the death rate from these diseases amounted to 5% at ages 55-64 and 16% at ages 65-74. The mortality from cancer decreased fully one-sixth among the insured women in the 45-74 age range; among the men, however, the cancer death rate increased somewhat, reflecting the sharp upward trend in the recorded mortality from respiratory cancer. The death rate from accidents has greatly improved over the 20-year period in the insurance experience.

FOREIGN

Meeting on Internal Medicine.—The fourth International Congress of Internal Medicine will be held in Madrid, Spain, Sept. 19-23, 1956. The main subjects will be "The Role of the Adrenals in the Pathogenesis and Evolution of Internal Diseases" and

"Bronchial Asthma and Emphysema." Communications on these themes or on any others of free choice will be accepted. Please address all inquiries to the Secretariat: Drs. J. C. de Oya and J. Gimena, Hortaleza n° 90.

Cancer Meeting in Paris.—At an international conference called by UNESCO in Paris, France, Dec. 12-16, 1955, to decide the organization's role in the world-wide problem of cancer, Dr. Harold L. Stewart of the National Cancer Institute, Bethesda, Md., and Dr. Harold P. Rusch, director of McArdle Memorial Laboratory at the University of Wisconsin, Madison, represented the United States. About 20 conference members were present from England, Denmark, Germany, the Netherlands, Switzerland, France, India, and Israel.

Seminar Congresses in Ophthalmology.—In its seminar congresses in ophthalmology the American Medical Society of Vienna, Austria, will present the following programs by the medical faculty of the University of Vienna:

Feb. 1-3, Tumors of the Eye; External Diseases of the Eye; Fundus Microscopy.
March 1-3, Anatomy of the Orbit and Adnexa; Indirect Ophthalmoscopy; Gross Pathology.
April 5-7, Histology of the Eye; Histopathology of the Eye; Ocular Muscle Anomalies.
May 3-5, Refraction, Ocular Motility; Perimetry.
June 7-9, Plastic Surgery of the Eye; External Diseases of the Eye; Glaucoma.
July 5-7, Slit Lamp Microscopy; Ophthalmoscopy; Ocular Therapeutics.
Aug. 2-4, Electrosurgical Treatment of the Eye; Ocular Cataracts; Retinal Detachment.
Sept. 6-8, Operative Ophthalmology; Gonioscopy; Anomalies.
Oct. 4-6, Neuroophthalmology; Diseases of the Retina; Physiology of the Eye.
Nov. 8-10, Ophthalmic Medicine; Diagnostic Examination; The Ocular Adnexa (Selected Topics).

Details may be obtained from the American Medical Society of Vienna, 1. Vienna, Universitaetsstrasse 11. Cable, "Ammedic," Vienna.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

1957 Clinical Meeting, Philadelphia, Dec. 3-6.

1958 Annual Meeting, San Francisco, June 23-27.

Annual Congress on Industrial Health, Sheraton-Cadillac Hotel, Detroit, Jan. 23-24. Mr. Clark D. Bridges, 535 N. Dearborn St., Chicago 10, Acting Secretary.

Annual Congress on Medical Education and Licensure, Palmer House, Chicago, Feb. 11-14. Dr. Edward L. Turner, 535 North Dearborn St., Chicago 10, Secretary.

Alaska Territorial Medical Association, Alaska Native Health Service Hospital, Anchorage, Feb. 20-22. Dr. Robert B. Wilkins, 1121 Fourth Ave., Anchorage, Secretary.

American Academy of Allergy, Chase Hotel, St. Louis, Feb. 6-8. Dr. Francis C. Lowell, 65 East Newton St., Boston, Secretary.

American Academy of Occupational Medicine, Netherlands-Plaza Hotel, Cincinnati, Feb. 15-17. Dr. Leonard J. Goldwater, 600 W. 168th St., New York 32, Secretary.

American Academy of Orthopaedic Surgeons, Palmer House, Chicago, Jan. 28-Feb. 2. Dr. John R. Norcross, 122 South Michigan Blvd., Chicago 3, Secretary.

American College of Radiology, Drake Hotel, Chicago, Feb. 10-11. Mr. William C. Stronach, 20 North Wacker Drive, Chicago 6, Executive Secretary.

American Society for Surgery of the Hand, Chicago, Jan. 27. Dr. George V. Webster, 1145 East Green St., Pasadena 1, Calif., Secretary.

Central Surgical Association, Hotel Kahler, Rochester, Minn., Feb. 23-25. Dr. Charles D. Branch, 102 North St., Peoria, Ill., Secretary.

Eastern Section, American Laryngological, Rhinological and Otological Society, Boston, Jan. 13. Dr. John A. Murtagh, Dartmouth College, Hanover, N. H., Vice President.

Los Angeles Midwinter Medical Convention, Biltmore Hotel, Los Angeles, Jan. 3-5. Dr. Paul D. Foster, 1925 Wilshire Blvd., Los Angeles 58, General Chairman.

Medical Society Executives Conference, Drake Hotel, Chicago, Feb. 6-8. Mr. H. Martin Baker, 1102 South Hillside, Wichita 17, Kansas, Secretary.

Middle Section, American Laryngological, Rhinological and Otological Society, Netherland Plaza, Cincinnati, Jan. 16. Dr. William H. Craddock, 2328 Auburn Ave., Cincinnati 19, Vice President.

Neurosurgical Society of America, Hotel Key Biscayne, Key Biscayne, Miami, Fla., Jan. 18-21. Dr. Lester A. Mount, 700 West 168th St., New York 32, Secretary.

Northwest Society for Clinical Research, University of Oregon Medical School, Portland, Ore., Jan 21. Dr. Arthur L. Rogers, 1216 S.W. Yamhill St., Portland 5, Ore., Secretary.

Regional Meetings, American College of Physicians:

Shreveport, La., Jan. 14. Dr. M. D. Hargrove, 803 Jordan St., Shreveport, La., Governor.

Philadelphia, Jan. 27. Dr. Thomas M. McMillan, 330 South 9th St., Philadelphia 7, Governor.

Saskatoon, Sask., Feb. 3-4. Dr. C. H. A. Walton, Winnipeg Clinic, Winnipeg, Man., Canada, Governor.

Tucson, Ariz., Feb. 11. Dr. Leslie R. Kober, 15 East Monroe St., Phoenix, Ariz., Governor.

Sectional Meetings, American College of Surgeons:

Jacksonville, Fla., Hotel George Washington, Jan. 16-18. Dr. Kenneth A. Morris, 2522 Oak St., Jacksonville 4, Fla., Chairman.

Philadelphia, The Bellevue-Stratford, Feb. 13-16. Dr. Calvin M. Smyth Jr., Abington Memorial Hospital, Abington, Pa., Chairman.

Society of University Surgeons, Hotel Claypool, Indianapolis, Feb. 8-10. Dr. C. Rollins Hanlon, 1325 South Grand Blvd., St. Louis 4, Secretary.

South Atlantic Association of Obstetricians and Gynecologists, Hollywood Beach Hotel, Hollywood, Fla., Jan. 28-Feb. 1. Dr. C. H. Mauzy, Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

Southern Section, American Federation for Clinical Research, Jung Hotel, New Orleans, Jan. 20. Dr. John H. Moyer, 1200 M.D. Anderson Blvd., Houston, Texas, Secretary.

Southern Section, American Laryngological, Rhinological and Otological Society, The Shamrock, Houston, Texas, Jan. 27-28. Dr. J. M. Robison, 1304 Walker Ave., Houston 2, Texas, Chairman.

U. S. Section, International College of Surgeons, Regional Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va., Feb. 12-15. Dr. E. G. Gill, 711 South Jefferson St., Roanoke, Va., Chairman.

Western Section, American Federation for Clinical Research, Golden Bough Theater, Carmel, Calif., Jan. 26. Dr. Charles M. Grossman, 301 Selling Bldg., Portland 5, Ore., Secretary.

Western Section, American Laryngological, Rhinological and Otological Society, County Medical Society Bldg., San Francisco, Jan. 21. Dr. David D. DeWeese, 1216 S. W. Yamhill St., Portland, Ore., Vice President.

Western Society for Clinical Research, Carmel-by-the-Sea, Calif., Jan. 27-28. Dr. Arthur J. Seaman, University of Oregon Medical School, Portland 1, Ore., Secretary.

FOREIGN AND INTERNATIONAL

All India Medical Conference, Jaipur, India, Dec. 26-28. Dr. B. N. Consul, Association Bldg., S.M.S. Hospital Premises, Jaipur, India, Organizing Secretary.

Canadian Medical Association, Quebec, P. Q., Canada, June 10-14, 1956. Dr. Arthur D. Kelly, 150 St. George St., Toronto 5, Ont., Canada, Secretary.

Conference of International Union for Health Education of the Public, Rome, Italy, April 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1er, France, Secretary-General.

Congress of International Anesthesia Research Society, Miami Beach, Fla., U.S.A., April 9-12, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Somerset, Boston, Mass., U.S.A., Aug. 27-Sept. 1, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, Sept. 12-15, 1956. Prof. Umberto Serafini, Instituto de Patologia Medica, Viale Morgagni, Florence, Italy, Secretary-General.

European Congress of Cardiology, Stockholm, Sweden, Sept. 10-14, 1956. Dr. Karl Erik Grewin, Sodersjukhuset, Stockholm, Sweden, General Secretary.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May, 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik, Hamburg-Eppendorf, Germany.

Health Congress, Royal Society for the Promotion of Health, Blackpool, England, April 24-27, 1956. Mr. P. Arthur Wells, 90 Buckingham Palace Road, London S.W. 1, England, Secretary.

Inter-American Congress of Cardiology, Havana, Cuba, Nov. 4-10, 1956. For information address: Dr. Ramon Aixala, Apartado 2108, Havana, Cuba.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Congress Against Alcoholism, Istanbul, Turkey, Sept. 10-15, 1956. For information address: International contre l'Alcoolisme, Case Gare 49, Lausanne, Switzerland.

International Congress on Animal Reproduction, Arts School, University of Cambridge, Cambridge, England, June 25-30, 1956. Dr. Joseph Edwards, Production Division, Milk Marketing Board, Thames Ditton, Surrey, England, Hon. Secretary.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress of Dietetics, Congress Palace, Esposizione Universale Roma, Rome, Italy, Sept. 10-14, 1956. Prof. E. Serianni, Associazione Dietetica, Italiana, via dei Penitenzieri N. 13, Rome, Italy, Secretary General.

International Congress on Diseases of the Chest, Cologne, Germany, Aug. 19-23, 1956. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, U. S. A., Executive Director.

International Congress of Entomology, Montreal, Canada, Aug. 17-25, 1956. Mr. J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ont., Canada, Secretary.

International Congress of Gastroenterology, London, England, July 18-21, 1956. Mr. Hermon Taylor, London Hospital, White Chapel, London E.1, England, Honorable Secretary.

International Congress of Health Technicians, Maison de la Mutualite, Paris, France, June 5-8, 1956. For information address: Mr. M. H. Thoillier, 37 Rue de Monthlon, Paris 9e, France.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Human Genetics, Copenhagen, Denmark, Aug. 1-6, 1956. For information address: The University Institute for Human Genetics, Tagensvej 14, Copenhagen N, Denmark.

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Palmer House, Chicago, Illinois, U. S. A., Sept. 9-13, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Dr. Valente, 41 Avenue Verdi, Montecatini Terme, Italy, Secretary-General.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for Physical Therapy, Hotel Statler, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International Genetics Symposium, Tokyo and Kyoto, Japan, Sept. 6-12, 1956. For information address: Secretary, International Genetics Symposium, Science Council of Japan, Ueno Park, Tokyo, Japan.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

International Symposium on Venereal Diseases and the Treponematoses, Hotel Statler, Washington, D. C., U. S. A., May 28-June 1, 1956. For information address: Dr. Charles A. Smith, Chief, Venereal Disease Program, Division of Special Health Services, Public Health Service, Dept. of Health, Education and Welfare, Washington 25, D. C., U. S. A.

Latin American Congress of Physical Medicine, San Juan, Puerto Rico and Curacao, N.W.1., Jan. 29-Feb. 8, 1956. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York 21, New York, U. S. A., Executive Director.

Medical Women's International Association, Extraordinary General Assembly, Burgenstock, Nidwalden, Switzerland, Sept. 21-23, 1956. Dr. Janet Aitken, 30a Acacia Road, London N.W. 1, England, Secretary.

Middle East Medical Assembly, Campus, American University of Beirut, Beirut, Lebanon, April 7-9, 1956. Dr. Virgil C. Scott, American University of Beirut, Beirut, Lebanon, Chairman.

National Congress of Pediatrics, Cuidad Universitaria, Mexico D.F., Mexico, May 1-5, 1956. Dr. Ignacio Avila Cisneros, Calzada de Madereros No. 240, Mexico 18, D.F., Mexico, Coordinator.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P.O Box 672, Cairns, N.Q., Australia, Secretary.

Pan-American Academy of General Practice, San Juan, Puerto Rico and Curacao, N.W.1., Jan. 29-Feb. 8, 1956. Dr. Arturo Martinez, 54 East 72d St., New York 21, New York, U. S. A., Secretary.

Pan American Congress of Gastroenterology, Havana, Cuba, Jan. 20-27, 1956. For information address: Dr. Norberto M. Stapler, 1267 J. E. Uriburu, Buenos Aires, Argentine, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, San Juan, Puerto Rico, April 8-12, 1956. Dr. C. E. Munoz MacCormick, Apartado 9111, Santurce 29, Puerto Rico, Secretary General.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. Dr. Maxwell Roland, 114-20 Queens Boulevard, Forest Hills 75, New York, N. Y., U. S. A., Chairman, Liaison Committee.

World Medical Association, Havana, Cuba, Oct. 9-15, 1956. Dr. Louis H. Bauer, 345 East 46th St., New York 17, New York, U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Various Centers.* April 24-25 (Part II); June 19-20 (Parts I and II); September 4-5 (Part I). Candidates may file applications at any time but they must be received at least six weeks before the date of the examination for which application is made. New candidates should apply by formal registration; registered candidates may notify the board, indicating desired location, date and candidate number. Ex. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 19-21. Sec., Dr. D. G. Gill, State Office Bldg., Montgomery.

Arizona:* *Examination.* Phoenix, Jan. 18-19. *Reciprocity.* Phoenix, Jan. 21. Sec., Dr. M. R. Richter, 411 Security Bldg., Phoenix.

Arkansas:* *Examination.* Little Rock, June 14-15. Sec., Dr. Joe Verser, Harrisburg.

California: *Examination.* Los Angeles, Feb. 27-Mar. 1. Sec., Dr. Louis E. Jones, 1020 N St., Room 436, Sacramento.

Connecticut:* *Examination.* New Haven, March 12-14. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven.

Delaware: *Examination.* Dover, Jan. 10-12. *Reciprocity.* Dover, Jan. 19. Sec., Dr. Joseph S. McDaniel, Dover.

District of Columbia:* *Examination.* Washington, May 14-15. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington.

Florida:* *Examination.* Miami Beach, June 24-26. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami 36.

Georgia: *Examination and Reciprocity.* Atlanta, June. Sec., Mr. Cecil L. Clifton, 111 State Capitol, Atlanta 3.

Idaho: *Examination and Reciprocity.* Boise, Jan. 9-11. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Illinois: *Examination and Reciprocity.* Chicago, Jan. 24-26. Supt. of Regis., Mr. Frederic B. Selcke, Capitol Building, Springfield.

Indiana: *Examination.* Indianapolis, June. Exec. Sec., Miss Ruth V. Kirk, 538 K. of P. Bldg., Indianapolis.

Maine: *Examination.* Portland, Mar. 13-14. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Michigan:* *Examination.* Ann Arbor and Detroit, June 13-15. Sec., Dr. E. C. Swanson, 118 Stevens T. Mason Bldg., Lansing.

Minnesota:* *Examination.* Minneapolis, Jan. 17-19. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 2.

Montana: *Examination and Reciprocity.* Helena, April 3. Sec., Dr. S. A. Cooney, 7 West 6th Ave., Helena.

Nebraska:* *Examination.* Omaha, June 18-20. Director, Bureau of Examining Boards, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada:* *Examination and Reciprocity.* Reno, Jan. 3. Sec., Dr. G. H. Ross, 112 N. Curry St., Carson City.

New Hampshire: *Examination and Endorsement.* Concord, March 14. Sec., Dr. John S. Wheeler, 107 State House, Concord.

New Jersey: *Examination.* Trenton, June 19-22. Sec., Dr. Patrick H. Corrigan, 28 W. State St., Trenton.

New York: *Examination.* Albany, Buffalo, Syracuse and New York, Feb. 7-10. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany.

North Carolina: *Reciprocity.* Durham, Jan. 16. *Examination.* Durham, June 18-21. Sec., Dr. Joseph J. Combs, Professional Bldg., Raleigh.

North Dakota: *Examination.* Grand Forks, Jan. 4-6. *Reciprocity.* Grand Forks, Jan. 7. Sec., Dr. C. J. Glaspel, Box 228, Grafton.

Oklahoma:* *Examination.* Oklahoma City, June 5-6. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

Oregon:* *Examination.* Portland, Jan. 16-17. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

Pennsylvania: *Examination.* Philadelphia, Jan. 23-26. Acting Sec., Miss Marguerite G. Steiner, Box 911, Harrisburg.

Rhode Island:* *Examination.* Providence, Jan. 5-6. Admin. of Professional Education, Mr. Thomas B. Casey, Room 366, State Office Bldg., Providence 2.

South Dakota:* *Examination.* Sioux Falls, Jan. 17-18. Exec. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Texas:* *Examination and Reciprocity.* Fort Worth, June 18-20. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

Utah: *Reciprocity.* Salt Lake City, Feb. 21. *Examination.* Salt Lake City, July 11-13. Director, Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City 1.

Washington:* *Examination.* Seattle, Jan. 9-11. *Reciprocity.* Seattle, Jan. 8. Secretary, Department of Licenses, Mr. Edward C. Dohm, Olympia.

West Virginia: *Examination and Reciprocity.* Charleston, Jan. 9-11. Sec., Dr. Newman H. Dyer, State Office Bldg., No. 3, Charleston 5.

Wisconsin:* *Reciprocity and Examination.* Madison, Jan. 10-12; *Reciprocity,* Madison, Spring; *Reciprocity and Examination.* Milwaukee, July 10-12. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., Madison.

Wyoming: *Examination and Endorsement. Cheyenne, Feb. 6. Sec., Dr.* Franklin D. Yoder, State Office Bldg., Cheyenne.

Alaska:* On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

Guam. *Endorsement.* Agana, Jan. 2. The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Sec., Dr. John E. Kennedy, Agana.

Hawaii: *Examination.* Honolulu, Jan. 9-12. Sec., Dr. I. L. Tilden, 1020 Kapiolani, St., Honolulu.

Puerto Rico: *Examination.* San Juan, Mar. 6-11. Sec., Dr. Joaquin Mercado Cruz, Box 3271, San Juan.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arkansas: *Examination.* Little Rock, May 4-5. Sec., Mr. S. C. Dellinger, Zoology Department, University of Arkansas, Fayetteville.

Connecticut: *Examination.* New Haven, Feb. 11. Address: State Board of Healing Arts, 258 Bradley St., New Haven 10.

District of Columbia: *Examination.* Washington, April 23-24. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave. N.W., Washington 6.

Florida: *Examination.* Miami, June 9. Sec., Mr. M. W. Emmel, Box 340, Gainesville.

Iowa: *Examination.* Des Moines, Jan. 10. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Reciprocity.* Lansing, Jan. 10. *Examination.* Detroit and Ann Arbor, Feb. 10-11. Sec., Mrs. Anne Baker, 410 W. Michigan Ave., Lansing 15.

Minnesota: *Examination.* Minneapolis, Jan. 3-4. Sec., Dr. Raymond N. Bieter, 126 Millard Hall, University of Minnesota, Minneapolis.

Nebraska: *Examination.* Omaha, Jan. 10-11. Sec., Mr. Husted K. Watson, Room 1009, State Capitol Bldg., Lincoln 9.

Nevada: *Examination.* Reno, Jan. 3. Sec., Dr. Donald G. Cooney, Box 9005, University Station, Reno.

New Mexico: *Examination.* Santa Fe, Jan. 15. *Reciprocity.* Sec., Mrs. Marguerite Cantrell, Box 1522, Santa Fe.

Oklahoma: *Examination and Reciprocity.* Oklahoma City, Mar. 30-31. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

Oregon: *Examination.* Portland, March 3; June 2. Sept. 8 and Dec. 1. Dr. Earl M. Pallett, Sec., State Board of Higher Education, Eugene.

Rhode Island: *Examination.* Providence, Feb. 15. Admin. of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

Tennessee: *Examination.* Memphis, Mar. 21-22. Sec., Mr. O. W. Hyman, 62 S. Dunlap St., Memphis 3.

Texas: *Examination.* Galveston, Dallas, and such other locations as are warranted, April. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

Washington: *Examination.* Seattle, Jan. 4-5. Secretary, Department of Licenses, Mr. Edward C. Dohm, Olympia.

Wisconsin: *Examination.* Madison, April 7 and Milwaukee, June 2. Final date for filing application is Mar. 30. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

Alaska: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

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*Basic Science Certificate required.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of The Journal. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, Jan. 9

NBC-TV, 11 a. m. to 12 noon EST. "Medical and Health News with Howard Whitman," a segment of the "Home" show.

ABC-TV, 9:30 p. m. EST. "Medical Horizons" goes to the University of Colorado School of Medicine at Denver for a report on accident proneness. Presented in cooperation with the American Medical Association.

Tuesday, Jan. 10

ABC-TV, 9:30 p. m. EST. "DuPont's Cavalcade Theater" repeats "Night Call"—a teleplay about 24 hours in the life of a general practitioner.

MAGAZINES

Family Circle, January, 1956

"How to Enrich Your Husband's Life," by Mort Weisinger

Dr. Elmer Hess, President of the American Medical Association, is one of 10 authorities giving advice to housewives. Dr. Hess tells "how to help keep your husband healthy."

"I Face an Operation," by Mary Phillips

A woman facing major surgery discovers the advances that have been made in procedure, anesthetics, and postoperative care and, as a result, attains the confident attitude that reduces operating-room dangers and speeds recovery.

Reader's Digest, January, 1956

"The Miracle of Muscle," by J. D. Ratcliff

"Muscles are fabulously complicated, not yet completely understood by science, and worthy of your thoughtful care." Condensed from *Today's Health,* this article explains what is known about muscles and suggests ways to keep them in trim.

"Why Not Music Like This in All Hospitals," by William S. Dutton

In 15 Philadelphia hospitals, a music program conducted by the Gray Ladies has brought comfort and diversion to ward patients.

"Why Doctors Face So Many Lawsuits," by Louis J. Regan, M.D., LL.B.

Dr. Regan, in an article condensed from *Look,* points out that "there has been no increase in actual malpractice, although there has been a staggering increase in the number of malpractice claims." He says: "Many unjustified malpractice claims could be avoided if patients would keep in mind what results can reasonably be expected from medical treatment and obtain expert opinion before bringing suit."

"Courage Is Not a Sometime Thing," by William J. Coughlin

Doctors are interested in the physical condition of George F. Smith, the first test pilot to live after bailing out of a plane going at supersonic speed.

GOVERNMENT SERVICES

ARMY

Stepped-Up Promotions for Medical Officers.—The Army Surgeon General, Major Gen. Silas B. Hays, announces that under revised promotion policies, physicians will be eligible for temporary promotion to the grade of major, lieutenant colonel, and colonel one year sooner than other Army officers.

As a result of the policy, it is estimated that 390 medical officers will be promoted to higher grades during the period ending June 30, 1956. Consideration is also being given to more rapid promotion of lieutenants to the grade of captain.

The action gives additional recognition to the long and expensive training required of doctors before they can qualify for Army commissions. It was pointed out that these officers have at least nine years of training beyond the high school level while most other Army officers have less formal education at the time they are commissioned. With the majority of Army medical officers now serving temporary two-year periods as a result of the Doctor-Draft Act, accelerated promotions are another means of attracting career officers into the Army.

ATOMIC ENERGY COMMISSION

Research Center to Be Built at Brookhaven National Laboratory.—Lewis Strauss, chairman of the U. S. Atomic Energy Commission, announces that a medical research center, including a nuclear reactor designed specifically for medical research and treatment, will be constructed at Brookhaven National Laboratory, Upton, N. Y., at a cost of 6 million dollars exclusive of design and engineering. The new facility will house a nuclear reactor, a research hospital, an industrial medicine branch, and research divisions in medical physics, pathology, microbiology, biochemistry, physiology, and clinical chemistry.

The present medical facility at Brookhaven consists of some 20 temporary buildings which were part of Camp Upton Hospital when the site was used by the Army during World War II. The buildings have become more inadequate as well as more difficult and costly to staff and maintain. The medical reactor at Brookhaven will be one of the first two in the United States. In July, the commission announced that the University of California had filed license applications with the commission for construction and operation of a medical reactor on the campus of the University of California at Los Angeles.

Medical research and treatment with neutrons have been conducted at Brookhaven since 1951 by using the general purpose research reactor already in operation. Treatment of patients at this reactor, however, requires that other work cease during the medical run, interrupting the research programs of other laboratory departments. The new reactor, designed specifically for medical use, will make available a source of neutrons for experimental work on brain cancer, as well as a number of special short-lived radioisotopes, permitting a much wider range of medical investigation than now under way.

NAVY

Officers Commended for Mexico Flood Disaster Duty.—The Commander, Joint U. S. Military Disaster Relief Forces, in Yucatan Peninsula and Tampico, Mexico, Rear Admiral M. E. Miles, has forwarded letters of commendation to Commander Jerry J. Zarriello, M. C., and Lieut. Commander Thomas B. Murray, M. S. C., USNR, for outstanding performance of duty while attached to his staff.

Commander Zarriello, flight surgeon, was commended for outstanding professional ability, initiative, judgment and devotion to duty as an advisor and in providing medical assistance and preventive measures in those disaster areas; he was also commended for his great endurance and outstanding professional skill in applying emergency surgical and medical measures to aid about 150 injured persons, under adverse field conditions, in the isolated village of Xcalac, State of Quintana Roo, Mexico, which village had been entirely destroyed by a severe hurricane. Commander Zarriello worked without rest or professional assistance for about 24 hours in carrying out this stage of his valuable disaster relief work.

Lieutenant Commander Murray, assigned additional duty on the staff of the commander of the task group for the purpose of rendering emergency epidemic disease control measures in the flooded city of Tampico and its outlying area, was commended for outstanding professional ability, judgment, and devotion to duty in executing these preventive measures in the disaster area.

Commander Zarriello is attached to the fleet aircraft service squadron 105, U. S. Naval Station, Coco Solo, Canal Zone. Lieutenant Commander Murray is attached to the naval air station, Corpus Christi, Texas.

Personal.—Lieut. Commander Thomas R. Ulshafer and Lieut. (j. g.) Frederick J. Fuerbach were recently commissioned in the regular Medical Corps of the Navy.

VETERANS ADMINISTRATION

Work Adjustment Training.—The Veterans Administration announces that hundreds of severely disabled veterans who might still be on the sidelines have gained a new start toward independent living through its program of "work adjustment training." The program is designed to help each disabled veteran master the fundamentals of day-to-day living and working. It is not designed to train him thoroughly for a specific job; that can come later, VA said. Most work adjustment training has been provided for disabled veterans in sheltered workshops and rehabilitation centers, where they can receive the sympathetic and understanding attention necessary in their first steps of adjustment to the work-a-day world. A few vocational schools also offer this training.

The program helps the veteran acquire fundamental work capacities—such as training a double-arm amputee to manipulate his hooks in handling papers for a filing job. It helps him adjust to work activities, to feel that, despite his handicaps, he is a part of his place of work, rather than apart from it, and it helps him develop fitness for a regular program of vocational training that can follow. Through "work adjustment training," severely disabled veterans already have prepared for jobs as draftsmen, office workers, restaurant workers, leatherworkers, woodworkers, radio repairmen, printers, book-binders and many more.

PUBLIC HEALTH SERVICE

Daily Water Supplies.—More than 52 million people in communities of 25,000 and over now depend on surface sources for their daily water supplies, as compared with fewer than 40 million eight years ago, the Public Health Service said in announcing results of a nationwide inventory; however, the use of untreated water by the country's larger communities has virtually ended. Less than one per cent of the population in communities of 25,000 and over today use untreated water, the service said.

These developments provide some measure of the progress made by our cities and towns in meeting the water needs of their rapidly growing populations, Gordon McCallum, chief of the service's water supply and water pollution control program, said. The sharp increase in the number of people dependent on surface waters also points up the need for conserving our natural water supplies through water pollution control and other practicable measures.

DEATHS

Abt, Isaac Arthur ⊕ in 1948 recipient of the Distinguished Service Medal of the American Medical Association, died at his home in Chicago Nov. 22, aged 87, of heart disease. Dr. Abt was born in Wilmington, Ill., Dec. 18, 1867. After a preliminary medical course at Johns Hopkins University in Baltimore in 1889, he received his degree of doctor of medicine in 1891 from the Chicago Medical College, now known as Northwestern University Medical School. He was thereafter an intern in Michael Reese Hospital from 1891 to 1892 and subsequently did graduate work in Vienna and Berlin. From 1897 to 1901 he served as professor of diseases of children in Northwestern University Woman's Medical School and was associate professor of diseases of children in Rush Medical College from 1902 to 1908. He then became professor of pediatrics and chairman of the department from 1909 to 1939, since which time he was professor emeritus. A specialist certified by the American Board of Pediatrics in 1926, Dr. Abt held the presidency of the American Pediatric Society and in 1930 that of the American Academy of Pediatrics, of which he was a founder. He was a past-president of the Chicago Medical Society, Institute of Medicine of Chicago, Chicago Pediatric Society, and the American Association of Teachers of Diseases of Children, a member of the Central States Pediatric Society, and honorary member of the German Society of Pediatrics and the Minnesota chapter of Alpha Omega Alpha, honorary medical fraternity. In 1927 he was made a Chevalier of the Legion of Honor of France. In 1909 he helped to found the first Chicago Milk Commission, which later developed into the Infant Welfare Society. He also served for a time as district county physician and as inspector of the staff of the Chicago Health Department. From 1919 through 1935 Dr. Abt was a member of the House of Delegates of the American Medical Association and in 1911-1912 was chairman of the Section on Diseases of Children. In 1925 he presented to the House of Delegates a report on the methods of sale and promotion of proprietary infant foods that has served as a standard since that time. He planned and built the first children's hospital in Chicago (Sarah Morris, a part of Michael Reese), where he was a consultant. He was a consulting physician in diseases of children at the Children's Memorial Hospital and St. Luke's Hospital, and attending physician, diseases of children, at the Passavant Hospital. He was credited with being the first physician to administer diphtheria antitoxin in Chicago, the first to provide incubators for premature babies, and the first American pediatrician to use protein milk in the treatment of diarrhea in infants. Dr. Abt was not only an outstanding clinician but was also a great teacher. His contributions to the literature of his specialty include hundreds of articles, a book called "The Baby's Food," published in 1917, and an autobiography called "The Baby Doctor," published in 1944. His "System of Pediatrics" was an encyclopedic work. He was helpful in 1910 in founding the *American Journal of Diseases of Children* and was editor of the volume on pediatrics in the Practical Medicine series. The Isaac A. Abt Pediatric Foundation at Northwestern, to which funds have been contributed by the physician's friends in his honor, furthers pediatrics research in the medical school and finances a fellowship in the field of children's diseases. In 1931 he received an honorary degree of doctor of science from Northwestern.

Eaton, William Edward ⊕ Captain, U. S. Navy, retired, Washington, D. C.; born in Newburyport, Mass., Nov. 7, 1882; Harvard Medical School, Boston, 1904; joined the U. S. Navy on March 14, 1910, as acting assistant surgeon; his first duty assignment was at the Naval Hospital, Chelsea, Mass.; during his 40 years of active service in the Medical Corps of the Navy, he landed at Vera Cruz, Mexico, with a force from the USS Utah, in 1914, in operations against Mexican forces; in 1914, served as an instructor at the Naval Medical School; in 1919 while serving as the sanitary engineer in the Republic of Haiti, set up and organized the public health service for that Republic; in June, 1935, assumed duty as executive officer of the Naval Hospital, Newport, R. I., after which he attended the senior class at the Naval War College in 1937; served as the Force Medical Officer, Destroyers Battle Force; in 1939 was ordered as medical officer in command of the Naval Hospital, Great Lakes, Ill., for which service he was awarded the Legion of Merit; was also a recipient of the Marine Corps medal, the Mexican medal, and the Haitian medal; placed on the retired list on Oct. 1, 1943, and continued on active duty; in 1946 served as a member of the Navy Regulations Board, convened to revise and rewrite Navy regulations; served as member of a board in the Bureau of Medicine and Surgery to prepare regulations implementing the Medical Service Corps, nurse corps, and the dental corps laws; in July, 1948, undertook preparation of medical department correspondence courses for the Naval Reserves; placed on inactive duty on Feb. 28, 1950; fellow of the American College of Surgeons; served on the staff of the Council on Medical Education and Hospitals, American Medical Association; died in the U. S. Naval Hospital, Bethesda, Md., Oct. 19, aged 72.

Curtis, Arthur Hale ⊕ Chicago; born in Portage, Wis., May 20, 1881; Rush Medical College, Chicago, 1905; interned at the Cook County Hospital; later took post-graduate work abroad; professor of obstetrics and gynecology emeritus at Northwestern University Medical School, where he was professor and chairman of the department of obstetrics and gynecology for many years; specialist certified by the American Board of Obstetrics and Gynecology; member of the House of Delegates of the American Medical Association in 1932, 1933, and 1934 and chairman, Section on Obstetrics, Gynecology and Abdominal Surgery, 1926-1927; member of the American Gynecological Society, of which he was at one time secretary and president; past-president of the Chicago Gynecological Society; member of the Nu Sigma Nu, Chicago Pathological Society, and the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; served overseas during World War I; for many years chief of service, obstetrics and gynecology, at the Passavant Memorial Hospital; at one time head football coach at the University of Kansas in Lawrence and the University of Wisconsin in Madison, where in 1935 he was awarded the honorary degree of doctor of laws; author of "Textbook of Gynecology" and "Gynecological Diagnosis"; editor of "Obstetrics and Gynecology"; died at his home in Evanston, Ill., Nov. 13, aged 74, of myocardial infarct.

Beall, Walter C., Denver; Medical College of Indiana, Indianapolis, 1901; an associate member of the American Medical Association; died in St. Luke's Hospital Sept. 14, aged 82, of pernicious anemia and arteriosclerosis.

Beeler, Thomas Taylor Jr. ⊕ Manchester, N. H.; University of Oklahoma School of Medicine, Oklahoma City, 1937; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; lieutenant colonel, Medical Corps, U. S. Army, from 1940 to 1953 and was awarded the Bronze Star medal with Oak Leaf Cluster; on the staff of the Veterans Administration Hospital; died Oct. 29, aged 44.

Belt, Leroy Lorin, Spring Valley, Calif.; Western Reserve University School of Medicine, Cleveland, 1916; served during World War I; on the staff of the La Mesa (Calif.) Community Hospital and Paradise Valley Sanitarium and Hospital in National City; died Sept. 23, aged 63, of coronary thrombosis.

Blanchar, William Otis, Los Angeles; Chicago Homeopathic Medical College, 1903; College of Physicians and Surgeons, Los Angeles, 1913; served in the regular Army; died Nov. 6, aged 81, of arteriosclerosis.

Boehmer, Arthur Clarence ⊕ Lodi, Calif.; University of Illinois College of Medicine, Chicago, 1914; member of the Industrial Medical Association; for many years director and president of the San Joaquin local health district; for 25 years physician for

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⊕ Indicates Member of the American Medical Association.

the Lodi Union High School football team; member of the board of directors of the Lodi Memorial Hospital; died in Truckee Oct. 7, aged 64, of cerebral vascular accident and diabetes mellitus.

Bostick, Alonzo E. ⊕ Iuka, Miss.; Memphis (Tenn.) Hospital Medical College, 1907; died Oct. 16, aged 84, of coronary occlusion.

Brabham, Vance Wells ⊕ Orangeburg, S. C.; University of Maryland School of Medicine, Baltimore, 1905; died Aug. 28, aged 74, of portal cirrhosis.

Brewer, John F. ⊕ North Little Rock, Ark.; Memphis (Tenn.) Hospital Medical College, 1901; local surgeon for the Rock Island Railroad; died in St. Vincent's Infirmary, Little Rock, Oct. 19, aged 80, of cerebral hemorrhage.

Brooks, Osceola Judkins ⊕ Huntsville, Ala.; Medical Department of Tulane University of Louisiana, New Orleans, 1893; past-president of the Madison County Medical Society; on the staff of the Huntsville Hospital, where he died Oct. 3, aged 83, of coronary thrombosis.

Browning, Arthur Wolfe ⊕ Elloree, S. C.; Baltimore Medical College, 1897; member of the American Academy of General Practice; died in the Orangeburg (S. C.) Regional Hospital Sept. 28, aged 77, of cerebral thrombosis.

Buchanan, William Paul ⊕ Detroit; University of Toronto Faculty of Medicine, Toronto, Canada, 1924; member of the American Academy of General Practice; on the staff of the Florence Crittenton Hospital and Mount Carmel Hospital; died Oct. 16, aged 57, of cancer.

Charters, John Henry ⊕ Fenton, Mich.; Detroit College of Medicine, 1897; died Oct. 5, aged 85.

Cobb, Donnell Borden ⊕ Goldsboro, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1921; member of the founders group of the American Board of Surgery; past-president of the Medical Society of the State of North Carolina; vice-president of the Southern Surgical Association; fellow of the American College of Surgeons; on the staff of the Goldsboro Hospital; died Nov. 12, aged 57, of coronary thrombosis.

Corbett, Henry Clay ⊕ Arlington, Va.; Columbian University Medical Department, Washington, D. C., 1883; member of the Medical Society of Virginia; died in Alexandria Oct. 7, aged 98, of heart disease and arteriosclerosis.

Davidson, Carlton Harold, Washington, D. C.; Western Pennsylvania Medical College, Pittsburgh, 1907; veteran of the Spanish-American War and World War I; for many years associated with the Veterans Administration; died Sept. 27, aged 76, of coronary occlusion.

Denton, Marvin, Oneonta, Ala.; University of Nashville (Tenn.) Medical Department, 1905; member of the Medical Association of the State of Alabama; died Oct. 17, aged 75, of coronary occlusion.

Downing, Richard Ray, Fort Wayne, Ind.; Indiana University School of Medicine, Indianapolis, 1953; interned at St. Joseph Hospital; died Sept. 19, aged 31.

Drinkwater, Ray Lawrence, Denver; University of Colorado School of Medicine, Denver, 1913; past-president of the Colorado State Division of Public Health; served during World War I; formerly on the faculty of his alma mater; died Sept. 23, aged 71, of gastric hemorrhage.

Ferguson, Joseph Hart, Ravenswood, W. Va.; University of Louisville (Ky.) Medical Department, 1911; served overseas during World War I; died Oct. 12, aged 76, of bronchopneumonia and cerebral thrombosis.

Finney, Margaret Hammond, Lincoln, Neb.; the Hahnemann Medical College and Hospital, Chicago, 1915; died Aug. 11, aged 76, of coronary thrombosis.

Flagge, Philip Wesley ⊕ Fairhope, Ala.; Washington University School of Medicine, St. Louis, 1902; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Heart Association and the Medical Society of the State of North Carolina; died in Alexandria, Va., Nov. 5, aged 79, of cerebral thrombosis.

Guild, Frederick Washburn ⊕ Fort Lauderdale, Fla.; University of Vermont College of Medicine, Burlington, 1909; formerly practiced in Grafton, Mass.; served on the staff of the Milford (Mass.) Hospital and the Hahnemann Hospital in Worcester, Mass., where he died Sept. 30, aged 70, of bronchopneumonia.

Hartt, Percy Perley, Baltimore; College of Physicians and Surgeons, Baltimore, 1913; for many years practiced in Ishpeming, Mich.; died Oct. 24, aged 67, of myocarditis.

Higinbotham, Charles John ⊕ Pine Bluff, Ark.; the Hahnemann Medical College and Hospital, Chicago, 1907; served in France during World War I; died in the Veterans Administration Hospital, Little Rock, Sept. 21, aged 76, of coronary thrombosis.

Hixson, Arthur Handley ⊕ Hawthorne, Calif.; Rush Medical College, Chicago, 1914; associated with the Hawthorne Community Hospital, where he died Sept. 16, aged 71, of coronary disease.

Hogans, Sterling Franklin, Charlotte, N. C.; Meharry Medical College, Nashville, Tenn., 1924; died in Royal Oak, Mich., Sept. 19, aged 57.

Hohn, Fred Julius ⊕ Saginaw, Mich.; Michigan College of Medicine and Surgery, Detroit, 1904; at one time practiced in Frankenmuth, where he was postmaster and health officer; on the staff of St. Luke's Hospital; died Nov. 6, aged 76, of cancer of the colon with metastasis.

Hooper, Joel Samuels ⊕ Camden, N. Y.; University of Buffalo School of Medicine, 1901; member of the Oklahoma State Medical Association; served during World War I; died Oct. 18, aged 81, of chronic myocarditis.

Jeffers, Dean Henry ⊕ Lake Geneva, Wis.; University of Michigan Medical School, Ann Arbor, 1916; died in St. Mary's Hospital, Rochester, Minn., Sept. 23, aged 69, of carcinoma of the rectum.

Lendrum, Birney Alexander, Oakland, Calif.; University of California Medical School, San Francisco, 1902; died in Fawn Lodge, Trinity County, Oct. 6, aged 80, of coronary thrombosis.

Lewis, George Vincent, Manitou Springs, Colo.; Washington University School of Medicine, St. Louis, 1919; member of the founders group of the American Board of Surgery; formerly on the faculty of the University of Arkansas School of Medicine, Little Rock; past-president of the Pulaski County (Ark.) Medical Society; served on the staffs of the St. Vincent Infirmary and the Missouri Pacific Hospital in Little Rock; died Oct. 16, aged 59, of acute pancreatitis.

McBee, Thomas Judson ⊕ Morgantown, W. Va.; College of Physicians and Surgeons, Baltimore, 1905; specialist certified by the American Board of Urology; member of the American Urological Association; served during World War I; on the staff of the Monongalia General Hospital; died Oct. 28, aged 75, of chronic nephritis.

Mantz, Eli Sylvester ⊕ Bethlehem, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1899; on the staff of St. Luke's Hospital, where he died Nov. 1, aged 82, of arteriosclerotic heart disease and nephrosclerosis.

Meyer, Nathan Nissau, Lakeland, Fla.; University of Wooster Medical Department, Cleveland, 1912; member of the Ohio State Medical Association; formerly practiced in Youngstown, Ohio; died in the Morrell Memorial Hospital Sept. 19, aged 65, of arteriosclerotic heart disease.

Miller, Charles Melbourne ⊕ Oakley, Kan.; Kansas City (Mo.) Medical College, 1905; veteran of the Spanish-American War and World War I; formerly member of the state legislature; for many years a member of the city council; died Oct. 16, aged 77, of cerebral hemorrhage.

Miller, Daniel Burton ⊕ Terre Haute, Ind.; Rush Medical College, Chicago, 1903; on the staff of St. Anthony's Hospital; for many years surgeon for the Chicago, Milwaukee and St. Paul Railroad; died Oct. 18, aged 79, of coronary thrombosis.

Mitchell, James Archie, West Palm Beach, Fla.; University of the City of New York Medical Department, New York City, 1894; died Sept. 20, aged 84, of coronary occlusion, hypertension, and pulmonary tuberculosis.

Monash, David ⊕ Chicago; Columbia University College of Physicians and Surgeons, New York City, 1893; fellow of the American College of Surgeons; served on the staff of the Mercy Hospital; died Nov. 5, aged 84, of a heart attack.

Moore, Edward Joseph ⊕ Merion Station, Pa.; Jefferson Medical College of Philadelphia, 1934; served during World War II; on the faculty of his alma mater; on the staff of the Bryn Mawr (Pa.) Hospital and the Jefferson Hospital, where he died Sept. 28, aged 50, of acute coronary thrombosis.

Mulligan, Raymond Francis ⊕ Covington, La.; Louisiana State University School of Medicine, New Orleans, 1948; interned at the Rhode Island Hospital in Providence; formerly an officer in the Medical Corps of the U. S. Naval Reserve; died in a plane accident Oct. 14, aged 31.

Nelson, Roland Clifford ⊕ Beverly Hills, Calif.; University of Illinois College of Medicine, Chicago, 1930; interned at the Los Angeles County General Hospital; member of the American Academy of General Practice; served during World War II; on the staffs of the California Hospital in Los Angeles and the Santa Monica (Calif.) Hospital; died Oct. 31, aged 53, of coronary occlusion.

Odell, Thomas Allen ⊕ Indianapolis; Southern Medical College, Atlanta, 1894; died in Greencastle Oct. 9, aged 90.

O'Gorman, Michael William, Nutley, N. J.; Columbia University College of Physicians and Surgeons, New York, 1895; for many years chief of the division of child hygiene in Jersey City; died in St. Mary's Hospital in Passaic Nov. 6, aged 83.

Ohrwall, Harold William Augustus, Hollister, Calif.; Cooper Medical College, San Francisco, 1898; died in Watsonville Sept. 29, aged 91, of senility.

Osburn, John Nelson Neill ⊕ Balboa, Calif.; University of Maryland School of Medicine, Baltimore, 1909; member of the American Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Ophthalmology; on the staff of St. Joseph's Hospital in Orange; for many years on the staff of the Santa Fe Coast Line Hospital in Los Angeles; died Oct. 11, aged 69, of cerebrovascular accident.

Outler, James Samuel, Augusta, Ga.; Meharry Medical College, Nashville, Tenn., 1923; died Sept. 11, aged 61, of myocardial infarction and arteriosclerotic heart disease.

Peterson, Clark Kimball ⊕ Pacific Grove, Calif.; Tufts College Medical School, Boston, 1905; for many years practiced in Lakeville, Conn., where he was health officer and medical examiner; served as chief of staff of Sharon (Conn.) Hospital; died Oct. 4, aged 76, of bronchopneumonia, advanced Parkinsonism, and cerebral arteriosclerosis.

Phillips, Samuel Hewes ⊕ St. Albans, W. Va.; University of Virginia Department of Medicine, Charlottesville, 1908; served during World War I; died Nov. 5, aged 75, of tuberculosis.

Pritchard, George Littleton ⊕ Black Mountain, N. C.; University College of Medicine, Richmond, 1913; died in St. Joseph's Hospital, Asheville, Oct. 14, aged 65, of coronary arteriosclerosis.

Randall, George Merrill, St. Petersburg, Fla.; Medical School of Maine, Portland, 1889; died in the Veterans Administration Center Sept. 20, aged 92, of hypostatic pneumonia and arteriosclerosis.

Rice, Herbert R. ⊕ Flagstaff, Ariz.; University of Minnesota Medical School, Minneapolis, 1930; interned at the Minneapolis General Hospital; served during World War II; commander in the U. S. Naval Reserve; on the staff of the Flagstaff Hospital; accidentally drowned while vacationing in Phoenix Oct. 10, aged 50.

Scott, Elmer Albert, St. Petersburg, Fla.; Dartmouth Medical School, Hanover, N. H., 1897; Bellevue Hospital Medical College, New York City, 1898; died June 11, aged 85, of generalized arteriosclerosis and pneumonia.

Sheffield, Homer H., Pasadena, Calif.; College of Physicians and Surgeons of San Francisco, 1901; died in San Gabriel, Calif., Oct. 17, aged 86, of coronary thrombosis and arteriosclerotic heart disease.

Shipley, James Everett ⊕ Major, U. S. Army, retired, Oklahoma City, Okla.; Northwestern University Medical School, Chicago, 1944; interned at St. Joseph Hospital, Chicago, where he was later a resident in surgery; formerly a resident in orthopedic surgery at the University and St. Anthony's hospitals; served during World War II; later transferred to the regular Army and then retired; died in the University Hospital Oct. 3, aged 36, of pneumonia and metastatic pulmonary osteogenic sarcoma.

Smallwood, Walter Charles ⊕ Long Beach, Calif.; Stanford University School of Medicine, San Francisco, 1916; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; from 1942 to 1947 associate clinical professor of medicine at University of Southern California School of Medicine, Los Angeles; on the staffs of the Long Beach Community, Seaside Memorial, and St. Mary's Long Beach hospitals; served during World War I; died Oct. 25, aged 65, of pulmonary emphysema.

Smith, William Douglas ⊕ Senatobia, Miss.; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; past-president of the Tate County Medical Society; served as health officer of Tate County; died Oct. 28, aged 82.

Stevens, James Henry, Jonesboro, Ark.; Barnes Medical College, St. Louis, 1906; on the staff of St. Bernard's Hospital; died Oct. 3, aged 71, of coronary occlusion.

Stone, Lee Alexander, Madera, Calif.; Kentucky University Medical Department, Louisville, 1902; an associate member of the American Medical Association; for many years county health officer; veteran of the Spanish-American War and World War I; died in the Veterans Administration Hospital, Fresno, Nov. 5, aged 76, of right cerebral thrombosis.

Taylor, Benjamin F., Marked Tree, Ark.; Barnes Medical College, St. Louis, 1898; died in the Baptist Hospital, Memphis, Tenn., Sept. 27, aged 83, of uremia.

Tibbels, Charles David ⊕ Black Rock, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1916; also an ordained minister; past-president of the Northeast Arkansas Medical Society and the Lawrence County Medical Society; died Oct. 23, aged 76.

Wahrhaftig, Myer Jacob ⊕ Oakland, Calif.; Oakland College of Medicine and Surgery, 1917; died in the Samuel Merritt Hospital Sept. 15, aged 67, of subarachnoid hemorrhage.

Westervelt, J. C., Shelbyville, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1877; for many years assistant secretary of the state board of health; for four terms mayor of Shelbyville; served as city health officer; a director of a savings and loan association of which he was at one time president; on the staff of the Shelbyville County Memorial Hospital; died Oct. 29, aged 100, of arteriosclerotic heart disease.

Westcott, Leo Enos, Kalamazoo, Mich.; Detroit College of Medicine and Surgery, 1914; specialist certified by the American Board of Internal Medicine; life member of the American College of Physicians; past-president of the Kalamazoo Academy of Medicine and the Kalamazoo County Cancer Society; served during World War I; on the staffs of the Borgess Hospital and the Bronson Hospital, where he died Nov. 6, aged 69, of general arteriosclerosis and cerebral hemorrhage.

Williams, J. Maxwell ⊕ Tampa, Fla.; Tulane University of Louisiana School of Medicine, New Orleans, 1940; interned at the Charity Hospital, New Orleans, where he served a residency; formerly a resident at the Johns Hopkins Hospital in Baltimore, where he died Sept. 25, aged 39.

CORRECTION

Rosenblate, Adolph Jan.—It was stated that Dr. Adolph Jan Rosenblate (The Journal, Nov. 26, page 1322), was a graduate of the University of St. Vladmira Faculty of Medicine, Kiev, Russia, in 1928. The name of the school was changed in 1917 to Kiever 1st Medical Institute. The institute is located in Kiev, the capital of the Ukrainian Soviet Socialist Republic.

the Lodi Union High School football team; member of the board of directors of the Lodi Memorial Hospital; died in Truckee Oct. 7, aged 64, of cerebral vascular accident and diabetes mellitus.

Bostick, Alonzo E. ⊕ Iuka, Miss.; Memphis (Tenn.) Hospital Medical College, 1907; died Oct. 16, aged 84, of coronary occlusion.

Brabham, Vance Wells ⊕ Orangeburg, S. C.; University of Maryland School of Medicine, Baltimore, 1905; died Aug. 28, aged 74, of portal cirrhosis.

Brewer, John F. ⊕ North Little Rock, Ark.; Memphis (Tenn.) Hospital Medical College, 1901; local surgeon for the Rock Island Railroad; died in St. Vincent's Infirmary, Little Rock, Oct. 19, aged 80, of cerebral hemorrhage.

Brooks, Osceola Judkins ⊕ Huntsville, Ala.; Medical Department of Tulane University of Louisiana, New Orleans, 1893; past-president of the Madison County Medical Society; on the staff of the Huntsville Hospital, where he died Oct. 3, aged 83, of coronary thrombosis.

Browning, Arthur Wolfe ⊕ Elloree, S. C.; Baltimore Medical College, 1897; member of the American Academy of General Practice; died in the Orangeburg (S. C.) Regional Hospital Sept. 28, aged 77, of cerebral thrombosis.

Buchanan, William Paul ⊕ Detroit; University of Toronto Faculty of Medicine, Toronto, Canada, 1924; member of the American Academy of General Practice; on the staff of the Florence Crittenton Hospital and Mount Carmel Hospital; died Oct. 16, aged 57, of cancer.

Charters, John Henry ⊕ Fenton, Mich.; Detroit College of Medicine, 1897; died Oct. 5, aged 85.

Cobb, Donnell Borden ⊕ Goldsboro, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1921; member of the founders group of the American Board of Surgery; past-president of the Medical Society of the State of North Carolina; vice-president of the Southern Surgical Association; fellow of the American College of Surgeons; on the staff of the Goldsboro Hospital; died Nov. 12, aged 57, of coronary thrombosis.

Corbett, Henry Clay ⊕ Arlington, Va.; Columbian University Medical Department, Washington, D. C., 1883; member of the Medical Society of Virginia; died in Alexandria Oct. 7, aged 98, of heart disease and arteriosclerosis.

Davidson, Carlton Harold, Washington, D. C.; Western Pennsylvania Medical College, Pittsburgh, 1907; veteran of the Spanish-American War and World War I; for many years associated with the Veterans Administration; died Sept. 27, aged 76, of coronary occlusion.

Denton, Marvin, Oneonta, Ala.; University of Nashville (Tenn.) Medical Department, 1905; member of the Medical Association of the State of Alabama; died Oct. 17, aged 75, of coronary occlusion.

Downing, Richard Ray, Fort Wayne, Ind.; Indiana University School of Medicine, Indianapolis, 1953; interned at St. Joseph Hospital; died Sept. 19, aged 31.

Drinkwater, Ray Lawrence, Denver; University of Colorado School of Medicine, Denver, 1913; past-president of the Colorado State Division of Public Health; served during World War I; formerly on the faculty of his alma mater; died Sept. 23, aged 71, of gastric hemorrhage.

Ferguson, Joseph Hart, Ravenswood, W. Va.; University of Louisville (Ky.) Medical Department, 1911; served overseas during World War I; died Oct. 12, aged 76, of bronchopneumonia and cerebral thrombosis.

Finney, Margaret Hammond, Lincoln, Neb.; the Hahnemann Medical College and Hospital, Chicago, 1915; died Aug. 11, aged 76, of coronary thrombosis.

Flagge, Philip Wesley ⊕ Fairhope, Ala.; Washington University School of Medicine, St. Louis, 1902; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Heart Association and the Medical Society of the State of North Carolina; died in Alexandria, Va., Nov. 5, aged 79, of cerebral thrombosis.

Guild, Frederick Washburn ⊕ Fort Lauderdale, Fla.; University of Vermont College of Medicine, Burlington, 1909; formerly practiced in Grafton, Mass.; served on the staff of the Milford (Mass.) Hospital and the Hahnemann Hospital in Worcester, Mass., where he died Sept. 30, aged 70, of bronchopneumonia.

Hartt, Percy Perley, Baltimore; College of Physicians and Surgeons, Baltimore, 1913; for many years practiced in Ishpeming, Mich.; died Oct. 24, aged 67, of myocarditis.

Higinbotham, Charles John ⊕ Pine Bluff, Ark.; the Hahnemann Medical College and Hospital, Chicago, 1907; served in France during World War I; died in the Veterans Administration Hospital, Little Rock, Sept. 21, aged 76, of coronary thrombosis.

Hixson, Arthur Handley ⊕ Hawthorne, Calif.; Rush Medical College, Chicago, 1914; associated with the Hawthorne Community Hospital, where he died Sept. 16, aged 71, of coronary disease.

Hogans, Sterling Franklin, Charlotte, N. C.; Meharry Medical College, Nashville, Tenn., 1924; died in Royal Oak, Mich., Sept. 19, aged 57.

Hohn, Fred Julius ⊕ Saginaw, Mich.; Michigan College of Medicine and Surgery, Detroit, 1904; at one time practiced in Frankenmuth, where he was postmaster and health officer; on the staff of St. Luke's Hospital; died Nov. 6, aged 76, of cancer of the colon with metastasis.

Hooper, Joel Samuels ⊕ Camden, N. Y.; University of Buffalo School of Medicine, 1901; member of the Oklahoma State Medical Association; served during World War I; died Oct. 18, aged 81, of chronic myocarditis.

Jeffers, Dean Henry ⊕ Lake Geneva, Wis.; University of Michigan Medical School, Ann Arbor, 1916; died in St. Mary's Hospital, Rochester, Minn., Sept. 23, aged 69, of carcinoma of the rectum.

Lendrum, Birney Alexander, Oakland, Calif.; University of California Medical School, San Francisco, 1902; died in Fawn Lodge, Trinity County, Oct. 6, aged 80, of coronary thrombosis.

Lewis, George Vincent, Manitou Springs, Colo.; Washington University School of Medicine, St. Louis, 1919; member of the founders group of the American Board of Surgery; formerly on the faculty of the University of Arkansas School of Medicine, Little Rock; past-president of the Pulaski County (Ark.) Medical Society; served on the staffs of the St. Vincent Infirmary and the Missouri Pacific Hospital in Little Rock; died Oct. 16, aged 59, of acute pancreatitis.

McBee, Thomas Judson ⊕ Morgantown, W. Va.; College of Physicians and Surgeons, Baltimore, 1905; specialist certified by the American Board of Urology; member of the American Urological Association; served during World War I; on the staff of the Monongalia General Hospital; died Oct. 28, aged 75, of chronic nephritis.

Mantz, Eli Sylvester ⊕ Bethlehem, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1899; on the staff of St. Luke's Hospital, where he died Nov. 1, aged 82, of arteriosclerotic heart disease and nephrosclerosis.

Meyer, Nathan Nissau, Lakeland, Fla.; University of Wooster Medical Department, Cleveland, 1912; member of the Ohio State Medical Association; formerly practiced in Youngstown, Ohio; died in the Morrell Memorial Hospital Sept. 19, aged 65, of arteriosclerotic heart disease.

Miller, Charles Melbourne ⊕ Oakley, Kan.; Kansas City (Mo.) Medical College, 1905; veteran of the Spanish-American War and World War I; formerly member of the state legislature; for many years a member of the city council; died Oct. 16, aged 77, of cerebral hemorrhage.

Miller, Daniel Burton ⊕ Terre Haute, Ind.; Rush Medical College, Chicago, 1903; on the staff of St. Anthony's Hospital; for many years surgeon for the Chicago, Milwaukee and St. Paul Railroad; died Oct. 18, aged 79, of coronary thrombosis.

Mitchell, James Archie, West Palm Beach, Fla.; University of the City of New York Medical Department, New York City, 1894; died Sept. 20, aged 84, of coronary occlusion, hypertension, and pulmonary tuberculosis.

Monash, David ⊕ Chicago; Columbia University College of Physicians and Surgeons, New York City, 1893; fellow of the American College of Surgeons; served on the staff of the Mercy Hospital; died Nov. 5, aged 84, of a heart attack.

Moore, Edward Joseph ⊕ Merion Station, Pa.; Jefferson Medical College of Philadelphia, 1934; served during World War II; on the faculty of his alma mater; on the staff of the Bryn Mawr (Pa.) Hospital and the Jefferson Hospital, where he died Sept. 28, aged 50, of acute coronary thrombosis.

Mulligan, Raymond Francis ⊕ Covington, La.; Louisiana State University School of Medicine, New Orleans, 1948; interned at the Rhode Island Hospital in Providence; formerly an officer in the Medical Corps of the U. S. Naval Reserve; died in a plane accident Oct. 14, aged 31.

Nelson, Roland Clifford ⊕ Beverly Hills, Calif.; University of Illinois College of Medicine, Chicago, 1930; interned at the Los Angeles County General Hospital; member of the American Academy of General Practice; served during World War II; on the staffs of the California Hospital in Los Angeles and the Santa Monica (Calif.) Hospital; died Oct. 31, aged 53, of coronary occlusion.

Odell, Thomas Allen ⊕ Indianapolis; Southern Medical College, Atlanta, 1894; died in Greencastle Oct. 9, aged 90.

O'Gorman, Michael William, Nutley, N. J.; Columbia University College of Physicians and Surgeons, New York, 1895; for many years chief of the division of child hygiene in Jersey City; died in St. Mary's Hospital in Passaic Nov. 6, aged 83.

Ohrwall, Harold William Augustus, Hollister, Calif.; Cooper Medical College, San Francisco, 1898; died in Watsonville Sept. 29, aged 91, of senility.

Osburn, John Nelson Neill ⊕ Balboa, Calif.; University of Maryland School of Medicine, Baltimore, 1909; member of the American Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Ophthalmology; on the staff of St. Joseph's Hospital in Orange; for many years on the staff of the Santa Fe Coast Line Hospital in Los Angeles; died Oct. 11, aged 69, of cerebrovascular accident.

Outler, James Samuel, Augusta, Ga.; Meharry Medical College, Nashville, Tenn., 1923; died Sept. 11, aged 61, of myocardial infarction and arteriosclerotic heart disease.

Peterson, Clark Kimball ⊕ Pacific Grove, Calif.; Tufts College Medical School, Boston, 1905; for many years practiced in Lakeville, Conn., where he was health officer and medical examiner; served as chief of staff of Sharon (Conn.) Hospital; died Oct. 4, aged 76, of bronchopneumonia, advanced Parkinsonism, and cerebral arteriosclerosis.

Phillips, Samuel Hewes ⊕ St. Albans, W. Va.; University of Virginia Department of Medicine, Charlottesville, 1908; served during World War I; died Nov. 5, aged 75, of tuberculosis.

Pritchard, George Littleton ⊕ Black Mountain, N. C.; University College of Medicine, Richmond, 1913; died in St. Joseph's Hospital, Asheville, Oct. 14, aged 65, of coronary arteriosclerosis.

Randall, George Merrill, St. Petersburg, Fla.; Medical School of Maine, Portland, 1889; died in the Veterans Administration Center Sept. 20, aged 92, of hypostatic pneumonia and arteriosclerosis.

Rice, Herbert R. ⊕ Flagstaff, Ariz.; University of Minnesota Medical School, Minneapolis, 1930; interned at the Minneapolis General Hospital; served during World War II; commander in the U. S. Naval Reserve; on the staff of the Flagstaff Hospital; accidentally drowned while vacationing in Phoenix Oct. 10, aged 50.

Scott, Elmer Albert, St. Petersburg, Fla.; Dartmouth Medical School, Hanover, N. H., 1897; Bellevue Hospital Medical College, New York City, 1898; died June 11, aged 85, of generalized arteriosclerosis and pneumonia.

Sheffield, Homer H., Pasadena, Calif.; College of Physicians and Surgeons of San Francisco, 1901; died in San Gabriel, Calif., Oct. 17, aged 86, of coronary thrombosis and arteriosclerotic heart disease.

Shipley, James Everett ⊕ Major, U. S. Army, retired, Oklahoma City, Okla.; Northwestern University Medical School, Chicago, 1944; interned at St. Joseph Hospital, Chicago, where he was later a resident in surgery; formerly a resident in orthopedic surgery at the University and St. Anthony's hospitals; served during World War II; later transferred to the regular Army and then retired; died in the University Hospital Oct. 3, aged 36, of pneumonia and metastatic pulmonary osteogenic sarcoma.

Smallwood, Walter Charles ⊕ Long Beach, Calif.; Stanford University School of Medicine, San Francisco, 1916; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; from 1942 to 1947 associate clinical professor of medicine at University of Southern California School of Medicine, Los Angeles; on the staffs of the Long Beach Community, Seaside Memorial, and St. Mary's Long Beach hospitals; served during World War I; died Oct. 25, aged 65, of pulmonary emphysema.

Smith, William Douglas ⊕ Senatobia, Miss.; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; past-president of the Tate County Medical Society; served as health officer of Tate County; died Oct. 28, aged 82.

Stevens, James Henry, Jonesboro, Ark.; Barnes Medical College, St. Louis, 1906; on the staff of St. Bernard's Hospital; died Oct. 3, aged 71, of coronary occlusion.

Stone, Lee Alexander, Madera, Calif.; Kentucky University Medical Department, Louisville, 1902; an associate member of the American Medical Association; for many years county health officer; veteran of the Spanish-American War and World War I; died in the Veterans Administration Hospital, Fresno, Nov. 5, aged 76, of right cerebral thrombosis.

Taylor, Benjamin F., Marked Tree, Ark.; Barnes Medical College, St. Louis, 1898; died in the Baptist Hospital, Memphis, Tenn., Sept. 27, aged 83, of uremia.

Tibbels, Charles David ⊕ Black Rock, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1916; also an ordained minister; past-president of the Northeast Arkansas Medical Society and the Lawrence County Medical Society; died Oct. 23, aged 76.

Wahrhaftig, Myer Jacob ⊕ Oakland, Calif.; Oakland College of Medicine and Surgery, 1917; died in the Samuel Merritt Hospital Sept. 15, aged 67, of subarachnoid hemorrhage.

Westervelt, J. C., Shelbyville, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1877; for many years assistant secretary of the state board of health; for four terms mayor of Shelbyville; served as city health officer; a director of a savings and loan association of which he was at one time president; on the staff of the Shelbyville County Memorial Hospital; died Oct. 29, aged 100, of arteriosclerotic heart disease.

Westcott, Leo Enos, Kalamazoo, Mich.; Detroit College of Medicine and Surgery, 1914; specialist certified by the American Board of Internal Medicine; life member of the American College of Physicians; past-president of the Kalamazoo Academy of Medicine and the Kalamazoo County Cancer Society; served during World War I; on the staffs of the Borgess Hospital and the Bronson Hospital, where he died Nov. 6, aged 69, of general arteriosclerosis and cerebral hemorrhage.

Williams, J. Maxwell ⊕ Tampa, Fla.; Tulane University of Louisiana School of Medicine, New Orleans, 1940; interned at the Charity Hospital, New Orleans, where he served a residency; formerly a resident at the Johns Hopkins Hospital in Baltimore, where he died Sept. 25, aged 39.

CORRECTION

Rosenblate, Adolph Jan.—It was stated that Dr. Adolph Jan Rosenblate (The Journal, Nov. 26, page 1322), was a graduate of the University of St. Vladmira Faculty of Medicine, Kiev, Russia, in 1928. The name of the school was changed in 1917 to Kiever 1st Medical Institute. The institute is located in Kiev, the capital of the Ukrainian Soviet Socialist Republic.

FOREIGN LETTERS

CANADA

Disability Allowances.—In 1954 the Parliament of Canada authorized financial assistance for permanently and totally disabled persons incapable of rehabilitation. The costs of assistance were to be shared equally by the federal and provincial governments and up to $40 a month was to be provided for each eligible person. All 10 Canadian provinces have now started their programs to implement this legislation. Criteria for permanent and total disability are severe, and emphasis is laid on rehabilitation where there is any hope of restoring function. The mechanism for assessing candidates for financial assistance from the medical standpoint is as follows: Applicants are first seen by their regular physician, who fills in a comprehensive medical form that is designed to give a clear picture of the functional loss due to mental or physical disability and, when completed, is passed on to a medical review board composed of a physician and a social worker representing the provincial government and a physician representing the federal government. The board may call for specialist help if needed, but it does not usually see or examine the patient, hence the need for a complete clinical report by the patient's physician. It may recommend acceptance, rejection, deferment, or reference to the rehabilitation services in the province. In the last case, the board does not actually prescribe rehabilitation but leaves assessment to rehabilitation assessment teams located in hospitals and rehabilitation centers.

It is inevitable that a scheme of this sort should have teething troubles. One complaint made by the medical profession has been of inadequate preliminary screening in some provinces. In some areas applicants who are obviously unsuitable have been reaching the physicians' offices, there to be turned away with some hard feelings. In other areas, however, screening has been good, and over 70% of applicants are reported to have been accepted. The second grievance has been the length of the form to be filled in. Whereas some provinces are prepared to pay the physician for his time and trouble, others have apparently expected to get this service free. To smooth out the workings of this program, a committee has been set up by the Canadian Medical Association. This committee is in close contact with the federal medical officer responsible for the program, and it is probable that, when the work is reviewed at the end of the first year, its unsatisfactory features can be dealt with. Perhaps the most encouraging feature of the program is the emphasis on rehabilitation. Nobody is to be written off as a total economic loss to the community unless the possibilities for restoration of function have been exhausted.

Good Patient Care.—As a timely reminder of the primary purpose of a hospital, the theme of the recent annual convention of the Ontario Hospital Association was "Good Patient Care Our Constant Aim." Two persons at this convention made the headlines, sharply criticizing certain aspects of the hospital system. The first blast came from the mayor of the city of Hamilton, who had been asked to speak from the patient's point of view in a panel discussion entitled "Let's Have a Look at Patient Care." Although Mayor Jackson has never been a hospital patient, some of his remarks were not without foundation. He said that hospital beds are cluttered up with persons who should not be there but in the care of their relatives or in other types of institutions. This is not a reflection on the hospital as much as on filial piety. He also complained that little was done to allay the apprehension of patients entering the hospital, to make them feel at home, or to explain to them hospital routine and the object of the diagnostic tests they were undergoing. He deplored the continued building of hospitals in noisy areas on busy streets. Hospitals should be at least 200 yards back from the road. He also suggested that interesting paintings on walls and ceilings of wards might give bored and helpless patients something to stare at.

The second critical paper, entitled "Psychiatric Problems in Hospitals," was read by Dr. D. G. McKerracher, president of the Canadian Psychiatric Association, whose chief target was the mental hospital. While praising the efforts of some devoted staff members, he said that the mental hospitals had made little progress in the last century beyond changing their name from asylum to hospital. Constantly and intolerably overcrowded, and usually located in remote areas far from medical centers, they were often hospitals only in name. The speaker blamed public attitudes for much of the trouble. The public still believes that mental illness is shameful or disgraceful and regards discharge from a mental hospital as a rare event. He advocated the treatment of mental illness in wards of general hospitals as far as possible, with mental hospitals for the more difficult chronic cases. The mental hospitals should be close to general hospitals, perhaps even as a 300-bed wing of the latter, with emphasis constantly on successful therapy and with the support of an accepting and interested community. As regards patients in general hospitals, it is essential to indoctrinate the staff with the idea that all illness has associated emotional problems, which need understanding and help by hospital personnel.

Adenoidal-Pharyngeal-Conjunctival Virus.—Members of the adenoidal-pharyngeal-conjunctival (APC) group of viruses, recognized in the United States, have recently made their appearance in Canada. A group of workers in the University of Toronto, engaged in research on viral diseases of the eye, have identified type 3 APC virus in eye washings obtained from seven patients involved in last winter's epidemic of follicular conjunctivitis and keratitis. The strain of virus was isolated and the disease was reproduced in a human volunteer by inoculation of tissue-culture fluid into the conjunctival sac. In a further communication (*Canad. M. A. J.* 73:864, 1955) the same group reports an epidemic of pharyngeal-conjunctival fever in Ontario in August, with fever, preauricular adenopathy, pharyngitis, follicular conjunctivitis, and corneal opacities in children and adults who had used swimming pools over a widely scattered area. Children were less severely affected than adults, few having corneal opacities, but catarrhal otitis media was a complication in 42 of 104 cases in children. Viral studies in progress suggest that the epidemic is also due to type 3 APC virus, and epidemiological studies show that, as in the 1954 epidemic in Washington, D. C., transmission has been either through contact at the swimming pool or by contact within the family.

Antibiotic-Resistant Organisms in Cheese.—When Micrococcus and Streptococcus organisms resistant to antibiotics are encountered in a patient previously treated with these drugs, or with a history of hospitalization, the cause of the situation is clear, but there is an increasing number of patients infected with antibiotic-resistant organisms from whom no such history is obtainable. Thatcher and Simon (*Canad. J. Pub. Health* 46:407, 1955) suggest that the resistant organisms may in some cases have been conveyed to the household in cheese. They purchased 100 specimens of cheese from retail stores in Canada, isolated Micrococcus and Streptococcus organisms from these, and determined the resistance of the organisms to antibiotics. They found that the commonest resistances were to penicillin and dihydrostreptomycin, the two antibiotics most commonly administered to cattle for control of bovine mastitis. No less than 15% of micrococcic and 67% of streptococcic cultures were resistant to penicillin. Food contaminated with such organisms may well be contributing to the severity of the problem of human infections with resistant strains of Micrococcus and Streptococcus organisms.

The items in these letters are contributed by regular correspondents in the various foreign countries.

DENMARK

Reorganization of Hospital Services.—In 1953 the Danish public health service and the Danish Medical Association appointed a committee to investigate the future optimal size of hospital departments, with special reference to the medical and surgical departments, and the most suitable organization of hospital medical staffs. Their report (*Ugeskrift for læger*, Aug. 23) states that between 1930 and 1954 the number of hospital departments for diseases of the ear, nose, and throat has risen in the provinces from 1 to 19 and for diseases of the eye from 0 to 14. The number of hospital beds for surgical cases has been doubled in the same period. The expansion of certain hospital departments has been so great and work in them so intensified that their chiefs have had great difficulties in giving personal attention to each patient, to their subordinate staff, and to research, current medical literature, and medical meetings. Another obstacle to maintaining close contact with each patient is the comparatively rapid turnover of patients in the hospital. It is suggested that a purely surgical hospital with only one chief, unaided by a highly qualified second-in-command chief, should not have over 80 beds and that the number of beds should not exceed 60 in hospitals specializing in neurosurgery or thoracic surgery. The objection that so small a hospital would not have a great enough variety of cases for teaching purposes can be met by an increase in turnover. On the organization of hospital medical staffs, the report says that with so few senior appointments and so many junior or subordinate appointments the prospects of promotion are relatively poor. The obvious remedy for this state of affairs is to create more senior appointments. It is also suggested that scientific, clinical research be encouraged in the provincial hospitals, and it is noted as a promising sign of the times that, of late, about one-third of the scientific papers submitted to the journal by the Danish Medical Association were of provincial origin. Another recommendation was that an adequate supply of secretarial aid be provided to relieve the medical hospital staff as much as possible of the task of filling in forms.

Prostatovesiculitis.—Abrahamsen and Madsen in *Ugeskrift for læger* for Aug. 4, reported on a series of 140 patients with prostatovesiculitis. They have learned to challenge the validity of three teachings hitherto regarded as axiomatic: that this disease is comparatively rare, that it is due to gonorrhea in most cases, and that its treatment requires the skill of a specialist. The alleged rarity of the disease may in part reflect lack of interest in it, and it is possible that the rise in the number of cases reported from the authors' hospital (from 15 in 1949 to 41 in 1954) may have come about because some cases were formerly overlooked. As for the part played by gonorrhea, smears and cultures of the urethral discharges of 129 patients yielded gonococcus organisms in only 4. In the entire series, however, 42 gave a history of gonorrhea. It is therefore conceivable that about a third of these patients had developed their prostatovesiculitis as a sequel to inadequate treatment of their gonorrhea, but this is only a speculative conclusion. While syphilis was rare in this series (5 patients), 22 patients had urographic and cystographic evidence of calculi in the prostate or upper urinary tract. There were also 16 patients with a history of stricture of the urethra. Habitual constipation was complained of by 31 patients, and an influenza-like attack occurred just before the prostatovesiculitis developed in 35 cases. A preliminary examination in some urologic hospital was recommended, but, once the correct diagnosis is made and the necessary instructions for treatment have been given, the general practitioner is quite capable of giving the prostatic massages found to afford some relief. Successful treatment requires persistence on the part of both physician and patient, and relapses are common. Of 24 patients reexamined three to five years after treatment was started, 9 were no better, 11 were improved, and only 4 were symptom-free. Chemotherapy and antibiotics are recommended only after effective drainage has been established, and even then with discrimination.

Prognosis in Cerebral Apoplexy.—Dr. Erik Skinhöy (*Nordisk medicin*, Aug. 25) has examined the records of 1,000 patients with cerebral apoplexy. The sex of the patient did not influence the case fatality rate (about 44%), but the patient's age did: under the age of 50 years it was 43% and over 80 years it was 58%. Comparatively young patients showed, however, a high case fatality rate, presumably because their apoplexy was often complicated by chronic nephritis and hypertension. Whether the patient had had a previous attack of apoplexy did not affect the rate. The prognosis was comparatively good when the patient's temperature was normal (case fatality rate 38%), whereas it was not good when the temperature was subnormal (case fatality rate 78%) and it was poor in the presence of fever (case fatality rate in a series of 125 patients 100%). Bad prognostic signs were Cheyne-Stokes respiration and cyanosis indicative of a failing heart. Underweight patients fared slightly worse than overweight patients (case fatality rate 45 and 42% respectively). The 318 patients with loss of consciousness showed a case fatality rate of 74%. Involvement of the lower limbs impaired the prognosis, probably because in most patients it was associated with damage at a higher level also. Among the patients rallying during the first 24 hours of an attack, the case fatality rate was under 20%.

ENGLAND

Injection of Drugs into Brain.—Dr. S. Sherwood has examined the response of psychotic patients to drugs injected into the ventricles of the brain (*Proc. Roy. Soc. Med.* 48:853, 1955). Injections were given at first with sharp needles through the scalp and previously made frontal bur holes. Later they were given with fine hypodermic needles through the scalp and the rubber bung of a cannula screwed into the frontal bone. The dose of drug, which was dissolved in Tyrode's solution, was calculated as the proportion of the systemic dose that would be contained in the ventricular fluid if the distribution after systemic injection were even throughout the body. All patients were chronic psychotics who had been ill for 3 to 25 (average, 11) years. The effects of the injections were observed in some patients over a period of two years. The observations were controlled with Tyrode's solution and followed up with extensive electroencephalographic recordings. Epinephrine in doses of 5 to 250 mcg. produced a general relaxation and lowering of muscular tone, a transient flush, warming of the extremities, sweating, and drowsiness. If no alpha rhythm were present in the control electroencephalogram after the injection of epinephrine, it appeared within a few minutes, and, if it were originally present in the control, it became enhanced. The electroencephalographic record was similar to that occurring in typical light sleep. Atropine in doses of 250 to 500 mcg. produced an increase in spontaneous movements of a relaxed kind. Methantheline and Pro-Banthine, in addition to an atropine-like effect, produced increased activity, and even agitation, and a change in the number of alpha frequencies of the electroencephalogram. Cholinesterase produced flushing and improvement in the condition of catatonic patients, who calmed down, became cooperative, and spoke rationally. The alpha rhythm in the electroencephalogram was greatly enhanced. Pentamethonium and gallamine, which are muscle relaxants, had a similar action. After the administration of serotonin (5-hydroxytryptamine), the patients became pale and perspired, were active or restless, talked readily, and, after several weeks, showed clinical improvement. They became employable and interested, improved their personal habits and appearance, and spoke more rationally. The electroencephalogram showed an increase in alpha amplitude, but not frequency, and a stabilization of the frequency with clinical improvement. Complications included infection of the spinal fluid and epileptic seizures due to puncture of the choroid plexus or a branch of the anterior cerebral artery. Cholinesterase had the most marked effect on abnormal thought processes and hallucinations; methantheline increased activity; the effect of serotonin stands between that of these two agents. Acetylcholine caused exacerbation of the patient's condition.

When Is a Drug Not a Drug?—Regulations 16 and 17 of the National Health Service Regulations, 1948, provide that if a physician prescribes under the National Health Service preparations that are not drugs or medicines and therefore outside the scope of the act, the executive council may recover their cost from him. If he challenges their action, the matter may be referred to the local medical committee, with the possibility of appeal to referees. In 1950 decisions were made on whether various borderline preparations should be classified as foods, toilet preparations, or drugs. A committee was appointed to classify substances as foods or drugs, and the report was published. Further reports were made on the classification of toilet preparations and antiseptics and circulated to physicians. The committee recommended that disinfectants should be regarded as drugs only when they are ordered in such quantities and with such directions as are appropriate for the treatment of an individual patient. Disinfectants are not considered as drugs if they are to be used for general hygienic purposes; thus saponated cresol solution may be prescribed for dressing a wound but not to disinfect the bath. Three test cases have come before the referees. A physician prescribed sulfur soap for seborrheic dermatitis. The executive council disallowed this as a free prescription item, and the physician appealed to the local medical committee, which upheld the decision. The physician then appealed to the referees. His argument was that a London dermatologist had prescribed sulfur soap for the patient. The referees decided that sulfur was a drug but soap was not and that therefore sulfur soap was not a drug. Another physician prescribed an antiseptic for an irritating skin lesion; it was the only preparation that relieved the patient. Curiously, though this therapy was almost certainly of a psychological nature, the referees allowed the claim. The case for sulfur soap as a therapeutic agent was much stronger, but the claim failed. Another physician prescribed a protein hydrolysate for a patient suffering from ulcerative colitis, with profuse diarrhea and malnutrition. This was disallowed by the executive council and by the referees. The physician's claim was upheld by a specialist who had seen the patient, but the referees held that it was not for specialists to advise on what executive councils could or could not provide under the National Health Service Act. These bureaucratic anomalies are frustrating for conscientious physicians trying to do the best for their patients. The thought that must be uppermost in their minds is not the value of the preparation to the patient but the opinion of the executive council on its validity as a free prescription item.

Nephrosis Treated by Malaria.—Gairdner and Shute have reported on patients with nephrosis in whom remissions have been induced by infecting the patient with malaria of the benign tertian variety by means of mosquito bites (*Lancet* **2**:946, 1955). A total of 65 patients was treated, 51 with "pure nephrosis" and 14 with nephritic nephrosis. The malarial attack was cut short with Proguanil. If a diuresis began any time after the onset of the malarial pyrexia, and up to a week after the end of the pyrexia, it was ascribed to the malaria. A complete remission was defined as loss of all edema, sustained for at least three months, and a partial remission as one where the loss of edema, although substantial, was either incomplete or was not sustained for three months. Complete remission was obtained in 14 of the patients with pure nephrosis, and 12 of these remained well within follow-up periods of up to six years. Partial remission occurred in 11 of the patients with pure nephrosis and in 5 of the nephritic nephrosis patients. The remaining 35 patients showed no remission. Most of the patients tolerated the treatment fairly well, although malaria was thought to have contributed to the death of one patient. Anemia developed in a large proportion of the patients with pure nephrosis. The plasma cholesterol level fell to normal levels within two weeks, and the gamma globulin, typically depressed in nephrosis, rose to normal levels. Proteinuria usually diminished sharply as diuresis set in. When remissions induced by malaria were compared with those induced by other means, the clinical and chemical abnormalities were essentially the same. In the malaria-induced remissions, however, the cholesterol level fell steadily from the onset of the pyrexia. The authors concluded that, while the cause of nephrosis remains obscure and treatment is empirical, malaria therapy is of value.

Effects of Employment of Pregnant Women.—For women having their first babies, gainful employment, in the first half of pregnancy if not throughout, is common. The state encourages married women to work by giving them preferential tax relief. Many married women of all ages with children work in factories. Dr. Alice Stewart has investigated the effect of employment of the mother on the health of the baby (*Brit. J. Prev. & Social Med.* **9**:159, 1955). She examined the records of 1,318 single first births and correlated these with the occupation and social position of the mother. The perinatal mortality and incidence of prematurity were greater in the infants of mothers who worked during pregnancy than in those of mothers who were housewives. The perinatal death rate increased with the time spent working in pregnancy. In infants born of housewives it was 2.8%. This rose to 4.9% if the mothers were employed for less than 28 weeks of the pregnancy and to 7.5% if they worked for more than 28 weeks. The incidence of prematurity in the same groups was 4.7%, 8.4%, and 11.1% respectively. There was no significant difference in the incidence of toxemia of pregnancy and the frequency of instrumental delivery in the three groups. The perinatal death rate and the incidence of prematurity were more than three times as high in the infants of mothers who were the wives of semiskilled and unskilled manual workers as in the infants of mothers married to professional men and business executives. The perinatal death rate and incidence of prematurity were both greater in the infants born of unmarried mothers. Examination of the causes of death suggested that the reason employed pregnant women had less successful pregnancies than housewives was that more of them gave birth to small babies whose survival rate was low.

Unemployment Among Physicians.—Dr. L. S. Potter of the Medical Practices Advisory Bureau, British Medical Association, has conducted an inquiry to ascertain the degree of unemployment and the number of "blind-alley" occupations in the British medical profession. This followed questions in Parliament on the unemployment of physicians and the statement that there were alleged to be 200 applicants for each vacant post in the United Kingdom. The Minister of Health was also asked whether, in view of the growing numbers of unemployed among British physicians, he would consider their being engaged in the Colonial Medical Service. Questionnaires were sent to 1,075 physicians, all of them registered with the bureau as seeking professional work in England. They were thus a group seeking positions or practices to better their prospects and not a cross section of the profession. Analysis of the questionnaires returned showed that 8% were unemployed. Of those in a representative group eligible for and seeking to establish themselves in general practice, not less than 5%, and not more than 7%, were unemployed and 45% stated that they were employed. Another 23% did not reply, and probably most in this group did not do so because they were suitably employed. Blind-alley or dead-end jobs were held by 25%. The figures for this group were difficult to interpret because one physician might be more ambitious than another and therefore not be satisfied with his position. Thus a practitioner who had been in one or more assistantships for several years and had been applying for openings with principal status without success might be said to be in a dead-end position.

Broken Hypodermic Needle.—A 15-year-old girl went to a hospital for an intramuscular injection of penicillin, which a nurse gave through a no. 16 needle. During the injection the girl made a sudden movement and the needle broke. An operation to remove it was performed with no remaining disability, except for a 3½ in. scar on the thigh. The girl, through her father, sued the hospital and the nurse for negligence. The judge said that there was nothing wrong with the nurse's method, but it was claimed that she used too short a needle and had pushed it in too far. The plaintiff's expert witness said that it was wrong to use a no. 16 needle and that he would have used a no. 2 needle, which is longer, thicker, and stronger. The defendant's expert witness considered that the selection of the needle and the method used were both right. The judge said that it was purely conjectural that the needle was pushed in right up to the hilt before it broke. It broke suddenly, and if a longer and thicker one had been used it would have caused more pain to the patient. He was not satisfied with the evidence that the needle was pushed in too far. All that was asked of nurses was that they should use reasonable care. The accident could have been due to an unexpected movement by the girl. As this could not be reasonably foreseen, it would not be right to use a thicker and longer needle and inflict extra pain on all patients to meet the possible contingency that one of them might flinch in the way this girl did. The judge said that no negligence was proved and gave judgment for the defendants.

Budget and the Health Service.—An autumn budget was introduced by the Chancellor of the Exchequer to curb spending and so help reduce imports, which are exceeding exports. The purchase tax has been increased to 30%, and this is levied not only on goods generally but also on certain medicines supplied to both private and National Health Service patients. Every new proprietary drug carries a purchase tax. The sums collected through this tax on drugs prescribed for National Health Service patients are about $700,000 and will probably be increased to nearly a million dollars per annum with the rise in tax rate. The Chancellor in his report to Parliament urged public authorities to cooperate in restraining both current and capital expenditure, and the hospitals were asked to economize. No actual restraint, however, was placed on them, and the government will not reduce hospital programs already announced. Hospital boards have been asked to undertake only those works that are urgent and necessary. The hospital building programs for 1956-1958 will not be affected. The cost of equipping new hospitals or new hospital departments will be higher because of the increased purchase tax. This will not result in any absolute increase of government spending but in the transfer of money from one government pocket to another.

Death from Penicillin.—At an inquest on the death of a 9-year-old boy, it was revealed that he had received an overdose of penicillin given intrathecally. On admission to the hospital he complained of headache, vomiting, and photophobia and was unable to move his head. A lumbar puncture was performed and penicillin given intrathecally. A trainee nurse was ordered to prepare an injection of 100,000 units, but she prepared 500,000 units by mistake and the dose was not checked by the physician giving the injection. Within 20 minutes the child had a convulsion and about four hours later died. The pathologist said that the cause of death was asphyxia due to convulsions, which were due to the penicillin. The spinal fluid was normal, and there was nothing to indicate the cause of the child's original illness. The coroner returned a verdict of death from misadventure. The jury considered that a fully qualified nurse should always be available for preparing intrathecal injections.

Cortisone Freed.—Now that at least three British firms are making cortisone in substantial quantities general practitioners are free to prescribe it for patients covered by the National Health Service and for private patients. Supplies of cortisone have so far been restricted to hospitals because the greater part has had to be imported. It is being made in Britain from sisal waste, a by-product of the rope industry.

INDIA

Endothelial Myeloma.—Agarwal and Ahuja (*Indian J. M. Res.* 43:521, 1955) reported a case of tumor of the lower jaw observed in a 3-year-old girl during routine histopathological examination at the Central Research Institute, Kasauli. The tumor showed features characteristic of endothelial myeloma (Ewing's sarcoma). The usual sites for this type of tumor are shafts of long bones, ribs, and flat bones of the pelvis. Its occurrence in the mandible is rare, only 19 cases having been previously reported. These cases occurred either in children or in young adults. The growth in this patient was noticed only a month before operation was performed. It had grown rapidly and was excised along with a portion of the jaw. On examination the growth could not be distinguished from the bone. Cortex and medulla were homogeneous, white, and firm. There was diffuse growth of closely packed round cells with oval, vesicular nuclei and poorly-staining scanty cytoplasm. The cells tended to form alveoli separated by fibrous trabeculae. Only certain areas showed polyhedral cells. The appearance somewhat resembled that of a lymphosarcoma. There was absence of cellular pleomorphism and osteogenic elements in the tumor.

Manufacture of Drugs.—The government has accepted the recommendations of the Pharmaceutical Enquiry Committee for the expansion of the pharmaceutical industry in India. In accordance with the recommendations the government plans to centralize the administration of the Drugs Act and exercise quantitative control of production. A development council for drugs has been set up to advise on matters relating to this industry. This committee is now drawing up the second five-year plan. It was also recommended that the duty on raw materials should be adjusted. Slaughterhouses along modern lines equipped to collect and store the glands and organs required by the pharmaceutical industry should be provided in all cities and large towns. The pharmaceutical industry is asked to set up testing laboratories for certifying the products and assisting the government in preventing the sale of substandard and spurious drugs. India hopes thus to become self-sufficient in drugs and chemicals and may even be in a position later to export some drugs and chemicals to other countries.

Production of Penicillin.—The government will produce all types of penicillin at the state-owned penicillin factory at Pimpri. A committee appointed to study the production of penicillin recommended that the capacity of the factory be increased by 60%. The glass vials used for packing will be siliconized at the penicillin bottling plant in Bombay. This will enable the last drop of penicillin to be withdrawn, thus saving 10 to 15% of the penicillin. The committee favors the production of potassium and sodium penicillin, procaine penicillin, benzathine penicillin, and benzathine penicillin G. Although there is no difference between the potassium and sodium salts therapeutically, the former is less hygroscopic and cheaper to manufacture. Procaine penicillin will be dispensed (1) fortified with the potassium or sodium salt in the proportion of 300,000 units of the first and 100,000 units of the second and (2) in oil with 2% aluminum monostearate. Penicillin for oral administration will be made in the form of tablets of 200,000 units each.

Urban Health Unit.—India's first urban health unit was opened in Calcutta in November. There are at present rural health units, and they have proved to be very effective. The urban health unit was sponsored jointly by the government of India, the United Nations International Childrens Emergency Fund, the World Health Organization, the government of West Bengal, and the Corporation of Calcutta. About 68,000 persons, or 13,000 families, will benefit from the scheme. Industrial workers, expectant mothers, children, and sufferers from veneral diseases, tuberculosis, and leprosy will receive special care. An intense health education program will be undertaken. A modern maternity home with 30 beds and a well-equipped nursery will be established close to the health unit. The unit will also serve as a demonstration center and practice field to students of the All India Institute of Hygiene and Public Health. This institute will assist the Corporation of Calcutta to carry out the program of the unit.

Report of World Health Organization's Regional Director.—In his annual report to the World Health Organization's regional committee for Southeast Asia, Dr. C. Mani stated that measures for the control of malaria are expected to cover most of the affected area by 1958. The program has 134 units and serves 125 million people. The BCG program continues as the largest operation of this kind in the world, with over 43 million persons having been tested and 14 million vaccinated by the end of 1954. A large-scale training program of nurses, midwives, and other health personnel is being conducted. A plant in Calcutta is now producing cardiolipin, and it is hoped that the entire requirements of this antigen for Southeast Asia will soon come from this plant.

Indian Medical Association.—The working committee of the Indian Medical Association passed a resolution in October asking the members of the Indian Medical Association not to give training to those who were unlikely to practice "modern medicine." The committee also gave full support to the BCG vaccination campaign of the state governments.

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Malpractice: Full Disclosure of Dangers of Treatment Not Always Necessary.—The plaintiff filed an action against the defendant dermatologists for damages caused by their alleged malpractice in the administration of gold sodium thiosulfate injections. From an adverse judgment, the plaintiff appealed to the Supreme Court of Washington.

The plaintiff consulted the defendant dermatologists concerning skin lesions on his face and neck, which they diagnosed as chronic discoid lupus erythematosus. A recognized treatment for this disease consists of periodic injections of heavy metal salts, the continuity of which must be maintained. After a series of bismuth injections the plaintiff was started on a course of gold sodium thiosulfate therapy. Since gold sodium thiosulfate has a possible toxic effect on some persons, the defendants, in accordance with their usual procedure, first gave the plaintiff a small injection of the gold sodium thiosulfate. When the plaintiff appeared the next week for his second, and larger, injection, he complained of muscle soreness in his neck, joint pains, and pains in his arms and stated that he did not think he should have the injection that day. The defendants, after examining the plaintiff, and inasmuch as the plaintiff did not complain of or manifest any symptoms that disclosed an adverse reaction to the therapy, gave the plaintiff an injection of gold sodium thiosulfate. Shortly after this injection was given, the plaintiff developed hepatitis resulting in jaundice.

The plaintiff contended that the defendants caused the jaundice by negligently administering excessive amounts of heavy metal salts, over the protest of the plaintiff, after toxic symptoms had developed and that they were negligent in treating him without warning him of the dangers incident to the treatment.

The Court said that in order for a physician or surgeon to be liable for malpractice, he must have done something in the treatment of his patient that the recognized standard of medical practice in his community forbids or he must have failed to do something required by that standard. Except in those cases where the negligence is so gross as to be readily apparent to a layman, a finding of negligence on the part of a physician or surgeon must be based on medical testimony that shows that he departed from the recognized standard of practice of the community. The trial court found that treatment with heavy metal therapy and the dosages and intervals at which the injections were given represented the standard practice of dermatologists in the community; that it was not the standard practice to tell the patients all of the risks involved (whether a patient is advised of the risks depends upon the judgment of the individual doctor, exercised in the light of the mental and psychosomatic make-up of the patient); that it was standard practice, when possible symptoms of toxicity arose, to evaluate them in relation to the progress made in the therapy in making a decision whether to stop or continue the treatment. The Supreme Court said that, since these findings of fact by the trial court were supported by the record, it could not disturb them.

Accordingly the judgment in favor of the defendant physicians was affirmed. *Woods v. Pommerening et al., 271 P. (2d) 705 (Wash., 1954).*

Drunkenness: Defendant's Failure in Submitting to Chemical Test.—The defendant was charged with the crime of driving a motor vehicle while intoxicated. From a judgment of conviction he appealed to the Supreme Judicial Court of Maine.

On Nov. 2, 1952, the defendant drove up to a place in Rumford that was being investigated for violation of the liquor law. When he got out of his car, he appeared to be intoxicated. His condition was witnessed by a number of persons, and a deputy sheriff told him to "take off," which he did. The defendant was arrested on Nov. 13, when an indictment was returned against him. At the trial the defendant's main argument was that the delay in obtaining his arrest deprived him of his right to have a blood test taken to determine the alcoholic content of his blood at the time of the alleged crime and that this delay amounted to a deprivation of his constitutional rights.

By statute in Maine the results of blood tests to show the alcoholic content of one's blood at a particular time may be admitted in evidence. The foregoing "blood test statute" gives a respondent no "privilege." Any person can have a blood test at any time, and the result can be testified to in court under the common law as a scientific fact. The respondent was not deprived of his right to have a blood test. He had time and opportunity to go to a doctor and get one if, in fact, he desired one. He was not prevented by any act of the state's officers. If this statute gave a "privilege," as the respondent in this case claims, every driver of an automobile who drives under the influence of liquor must be arrested immediately. No person thus breaking the law could ever be convicted and sentenced unless he was "found" so driving, immediately arrested, and at once permitted to have a blood test if he requested. This would practically result in a statute of limitations of not more than a few hours, which is an absurdity. The Court failed to find in the case at bar that any right of this respondent had not been protected.

Accordingly, the judgment of conviction was affirmed. *State v. Demerritt, 103 A. (2d) 106 (Maine, 1953).*

Drunkenness: Taking of Blood Sample from Unconscious Person.—The petitioner filed a habeas corpus proceeding against the warden of the penitentiary in which he was imprisoned. The case was heard by the Supreme Court of New Mexico.

The petitioner was being held under a sentence for involuntary manslaughter, his conviction being based in part on the results of a test for intoxication, which was made from a sample of his blood. The sample was taken after an accident and while he was unconscious. The petitioner contended that the taking of the blood sample and the admission in evidence at the trial of the results of the test made of such sample was a denial of due process under the 14th Amendment of the Constitution of the United States.

The Court pointed out that the United States Supreme Court has held that a conviction, in a state court, based on evidence obtained in an illegal search and seizure is not a denial of due process under the 14th Amendment. The privilege against self-incrimination applies only to spoken evidence obtained by compulsion and not to real evidence, such as the results of an involuntary blood test. The taking of a blood sample in the usual fashion, such as was done in the present case, is not in and of itself so brutal and shocking as to offend the community's sense of justice and fairness. The taking of the sample while the petitioner was unconscious was not, therefore, a denial of due process.

The petition for a writ of habeas corpus was therefore denied. *Breithaupt v. Abram, 271 P. (2d) 827 (N. Mex., 1954).*

MEDICAL FILM REVIEWS

Surgical Anatomy of the Female Pelvis: 16 mm., color, sound, showing time 11 minutes. Prepared by Conrad J. Baumgartner, M.D., College of Medical Evangelists, Los Angeles. Produced in 1954 by Billy Burke Productions, Hollywood, for and procurable on loan from E. R. Squibb and Sons, 745 Fifth Ave., New York 22.

The purpose of this film is to demonstrate the surgical anatomy of the female pelvis. Using a combination of drawings and live photography of the pelvic cavity, the film first locates the various organs with complete anatomic accuracy and then demonstrates their locations as well as their anatomic landmarks. As a result of the effort to supplement the film with drawings, there are some defects, omissions, and weaknesses. For example, the attachment of the round ligament on the posterior surface of the cervix is too far lateral, the interstitial portion of the fallopian tube is not mentioned, and the description of the broad ligament as a tent-like structure is not clear. Gynecologists presenting this film to students will have to make supplementary remarks that will complement and clarify some of the minor inaccuracies in the narration and the drawings. In spite of these short-comings the film is recommended for those who are interested in gynecologic surgery and who are seeking better knowledge of fundamental anatomy. The photography is excellent.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Cortisone in Ulcerative Colitis: Final Report on a Therapeutic Trial. S. C. Truelove and L. J. Witts. Brit. M. J. 2:1041-1048 (Oct. 29) 1955 [London, England].

A therapeutic trial of cortisone in nonspecific ulcerative colitis was carried out in five different regions in Great Britain, and a preliminary report of the immediate results appeared in the *British Medical Journal* (2:375 [Aug. 14] 1954; abstracted in THE JOURNAL, Nov. 20, 1954, p. 1200). Of the 210 patients with chronic ulcerative colitis reported on, 109 were treated with cortisone, the usual dose being up to 100 mg. daily for six weeks, and 101 who were given placebos served as controls. The attending physicians were not informed which preparation the patient was receiving. In the present paper results of follow-up of 205 of these 210 patients for an average period of 18 months are reported. At every stage of severity of the illness and in both first attacks and relapses, the cortisone-treated patients did better than the corresponding control patients. Cortisone was particularly beneficial in first attacks of the disease. Patients treated with cortisone were somewhat more likely to suffer from pyogenic complications and eye complications than patients not so treated, but the two groups did not differ appreciably in other complications such as polyposis, thromboembolic complications, aplastic blood disorders, and ulcerative stomatitis. To minimize the risk of pyogenic complications in patients treated with cortisone, it seems advisable to combine cortisone with penicillin or sulfonamides. Sigmoidoscopy was carried out at the end of the treatment in 120 patients so that comparison could be made with the sigmoidoscopic appearances before the institution of treatment. Normal or improved sigmoidoscopic appearances were more frequent in the cortisone-treated group than in the controls. Similarly, in 51 patients examined roentgenologically with the aid of barium enema at the end of the treatment, improvement in the radiological appearances was more common in the cortisone-treated patients. Of 16 patients who died in the course of the treatment or within the next two months, 5 were in the cortisone-treated group (a mortality rate of 4.6%) and 11 (10.9%) were in the control group. Eight of the deaths occurred among the 24 patients who underwent ileostomy; two of the eight were in the cortisone-treated group and six in the control group. Nine months after the trial period, patients treated with cortisone in the first attack of ulcerative colitis preserved a clear advantage over the corresponding control patients. By contrast, patients treated with cortisone for relapses had lost the initial advantage they showed at the end of the trial period. After 18 months of follow-up, essentially the same pattern was observed as at 9 months, but with a slight worsening of the general aspect. In addition to the 24 patients who underwent ileostomy in the course of the trial period or shortly afterwards, 20 patients underwent ileostomy during the follow-up period; of these 44 patients, 14 (31.8%) were dead at the end of the authors' study. Cortisone is a valuable addition to the medical treatment of ulcerative colitis. It seems likely that better short-term results than those obtained in the present trial could be achieved by the use of higher doses of cortisone when necessary. However, the effect of cortisone is far from permanent, particularly in the established disease, though it is possible that more prolonged treatment than that practiced in the authors' patients will give better long-term results.

Treatment of Epidemic Hepatitis with Cortisone. W. Siegenthaler and L. Suter. Schweiz. med. Wchnschr. 85:1051-1053 (Oct. 22) 1955 (In German) [Basel, Switzerland].

Of 50 patients with epidemic hepatitis, 25 were treated with cortisone and 25 received no cortisone but, instead, infusions of 20 to 40% levulose (*d*-fructopyranose) solution (Laevosan). Both groups of patients were given bed rest and dietetic treatment. The cortisone-treated group received orally on 10 successive days doses of from 100 to 200 mg. of hydrocortisone, depending on the severity of the hepatitis. On the last two or three days of treatment these doses were usually reduced. Cortisone had a definite effect on the course of the disease. This became evident particularly in the decided and rapid improvement in the general condition with improvement in appetite and in the rapid reduction in the serum bilirubin content, which was much slower in the patients who did not receive cortisone. As regards the mode of action of cortisone on the hyperbilirubinemia, the authors believe that its anti-inflammatory effect restores the bile flow that was blocked by the serositis. Increase in hepatic glycogen may also play a part. Some of the undesirable secondary effects of cortisone therapy became evident in that despite low salt intake many of the patients showed retention of water and four showed glycosuria, but these secondary effects promptly subsided after cortisone treatment was discontinued. Relapses of hepatitis occurred in 6 of the 25 patients, but these again responded to cortisone therapy. This suggests that in some cases cortisone may interfere with the immunizing process. For this reason the authors advise against the routine use of cortisone in epidemic hepatitis, preferring its restriction to severe cases. They feel that a damaging effect on the liver is not to be feared with orally given doses of 100 mg. of hydrocortisone for 10 days. Cortisone, together with the customary infusion therapy, should be used also in hepatic coma as long as other measures have little effect in this condition. . . .

Hiatus Hernia and Angina Pectoris. H. Schmid and G. Biörck. Klin. Wchnschr. 33:928-931 (Oct. 15) 1955 (In German) [Berlin, Germany].

The differentiation between hiatus hernia and angina pectoris may be extremely difficult because substernal pain, sometimes with radiation to arm and hand, is the chief symptom in both conditions. On the basis of a case history and a review of the literature, the authors discuss the relationship of esophageal disorders and heart symptoms, pointing out that the topographic anatomy of the esophageal hiatus shows the close connection between the esophagus, the two vagus nerves, and the wall of the left ventricle. Then they call attention to the factors that are important in the differentiation between esophageal hiatus hernia and angina pectoris. In diaphragmatic esophageal hiatus hernia, the substernal pains generally radiate to the right shoulder, and, whereas patients with hiatus hernia rarely obtain relief by glyceryl trinitrate (nitroglycerin), this medication nearly always gives relief in coronary diseases. The administration of atropine has the opposite effect. Attacks of pain after eating or while lying down are usually caused by hiatus hernia. Patients with angina pectoris have attacks of pain after exertions and emotional excitement. Work tests with electrocardiography may prove valuable in the differentiation, but a negative exertion test does not exclude angina pectoris, and even a positive test is not always decisive. If symptoms of coronary disease exist without objective signs of a heart lesion in a patient in whom roentgenography reveals a hiatus hernia, the authors feel that a thorough history will be helpful to decide whether the hiatus hernia is the cause of the coronary symptoms or whether the hiatus hernia is a secondary disease. The less the coronary symptoms give the im-

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The place of publication of the periodicals appears in brackets preceding each abstract.

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pression of a typical exertion angina, the more thought should be given to hiatus hernia. Conservative treatment of the hiatus hernia should be instituted, and the success or failure of this treatment will be an aid in the differentiation between hiatus hernia and coronary disease. Furthermore, some of the general recommendations for the relief of the symptoms of hiatus hernia will also be of therapeutic value in coronary disease. The further course of the hiatus hernia will then make it possible to decide on the need for the surgical treatment.

Chronic Bronchitis: The Effect of Cigarette-Smoking. N. C. Oswald and V. C. Medvei. Lancet 2:843-844 (Oct. 22) 1955 [London, England].

The authors mention the following six factors as contributing to the development of chronic bronchitis: infection, polluted inspired air, the accompaniments of poverty, allergy, heredity, and the degenerative changes of advancing years. In addition, chronic bronchitis may be secondary to various pulmonary and general diseases. Assessment of the relative importance of any one factor is likely to be hazardous and can best be undertaken by selecting a group of people as similar as possible in all other respects. In the present instance the factor of cigarette smoking was investigated, and comparison was made of the prevalence of minor respiratory symptoms and of bronchitis in smokers and nonsmokers. The prevalence of minor respiratory symptoms and bronchitis was investigated in 5,844 clerical workers and was compared with their smoking habits. The proportion of clerical workers having minor respiratory symptoms and bronchitis was consistently higher in smokers than in nonsmokers. The greater prevalence of bronchitis in the older age group was clearly shown. For the entire series, 36% of the smokers were free from respiratory symptoms, compared with 53% of the nonsmokers. About 48% of the smokers and 38% of the nonsmokers had "mild respiratory symptoms." This difference must be accounted for to some extent by the so-called smoker's cough. The prevalence of bronchitis in smokers of the two sexes is very similar; the differences in nonsmokers are small. These findings suggest that sex is not an important factor in the development of bronchitis among persons living and working in similar circumstances.

The Treatment of Diastolic Hypertension with a Fixed Combination of Hypotensive Drugs. J. M. Waldron, D. J. Reinhardt III, W. K. Jenson and F. Goldstein. Am. J. M. Sc. 230:551-557 (Nov.) 1955 [Philadelphia].

The authors have had experience at their clinic with all presently used types of hypotensive drugs, given singly and in various combinations. When a combination of Rauwolfia serpentina, protoveratrine, and phenoxybenzamine (Dibenzyline) in a single capsule became available, they began a therapeutic trial with this compound. Of 75 patients selected for study only 38 were followed for a minimum of six months' treatment and were fully evaluated. The evaluation of changes in the blood pressure was based chiefly on the diastolic pressure. Nineteen of the 38 patients achieved consistently normal diastolic pressure; 9 additional patients had a fair response. Thus 28 of 38 patients showed a satisfactory response. The remaining 10 patients, most of whom had severe hypertension or hypertensive cardiovascular disease, responded unsatisfactorily or not at all. None of the patients with nitrogen retention responded satisfactorily. There were no other features that permitted the prediction of the hypotensive response in the individual patient, although as a group patients with the severest type of hypertension did much worse than patients in the less severe groups. The decline in blood pressure was usually delayed and gradual in patients responding favorably. In some patients a good response was seen after two weeks, but in the majority it took four weeks before a significant drop in blood pressure was apparent, and the maximal therapeutic effect was frequently reached only after six to eight weeks. The pulse rate decreased concurrently with the blood pressure. The relatively slow rate of blood pressure reduction and the slow rate of climb when the drug is withdrawn are safety factors, and, together with the ease of administration and the minimum of severe side-reactions, are definite advantages. The main disadvantages are: the high incidence of minor annoying side-reactions, the failure of a rather large percentage of patients (about 30%) to respond, and the inability to predict the response in most instances.

Disability of the Knee Due to Referred Pain and Related Phenomena. R. J. Dittrich. J. Am. Geriatrics Soc. 3:800-803 (Oct.) 1955 [Baltimore].

Clinical observations have revealed pathological changes at two sites in the lower part of the back. The abnormalities consist of fibrosis of subfascial fat, with adhesions between this structure and the overlying lumbodorsal fascia. The locations of the alterations are the midsacral paraspinal region and the midlumbar region over the lateral portion of the sacrospinalis muscle. The pathophysiological effects derived from the lesions are predominantly referred pain and referred tenderness, appearing in the spinal segmental (sclerotomal) distribution of the nerves that receive the impulses at their source. The midsacral site lies within the sclerotomal field of the first sacral nerve; the midlumbar site is supplied by the second lumbar nerve. A characteristic clinical picture of disability of the knee may develop. The outstanding features are *pain on the anteromedial aspect of the* knee, less commonly in the lateral portion; onset without known cause or, at times, related to minor injuries; disability due to pain on use, often sufficiently intense to preclude work; absence of objective evidence of serious injury; and moderate to marked *tenderness elicited on the anteromedial or anterolateral aspect* of the joint and extending above and below the joint line for a distance of 2 or 3 in. The diagnosis is made from the pattern of distribution of the referred pain and tenderness, together with demonstration of a significant degree of tenderness at the sites of the trigger-points, in the sacral and lumbar regions. Local anesthesia by infiltration of the subfascial space in the sacral region is employed as a diagnostic measure and, not uncommonly, provides substantial or complete relief of symptoms. In some instances, surgical correction is indicated. The author presents the histories of four patients to illustrate this form of disability of the knee.

A Case of Takayashu's Syndrome: The Pulseless Disease. L. Trias de Bes, J. G. Sanchez Lucas and F. Ballestra Barcons. Brit. Heart J. 17:484-488 (Oct.) 1955 [London, England].

The most striking feature of Takayashu's or pulseless disease is the complete absence of arterial pulsation in the main arterial trunks arising from the aortic arch. It was first described by the Japanese ophthalmologist Takayashu in 1908. His attention was drawn to the serious ocular accompaniments. Japanese authors have described a total of 58 cases. After citing three previous European reports, the authors present a new case, which they believe is the 37th of the non-Japanese cases hitherto reported. The patient was a 19-year-old woman. She was of asthenic constitution but had been able to work in the household and on the farm. At the age of 18 she had aural vertigo and some short syncopal attacks with slight convulsions. She was complaining of progressive weakness and had noticed undue muscular tiredness in both arms, so that she was apt to drop things; this was due to intermittent claudication of the arms. In 12 months there had been three bouts of transitory hemiparesis, lasting for about half an hour, accompanied by dysarthria. Abrupt movements of the head accentuated the giddiness and even provoked syncope. The patient had hypersensitivity of the carotid sinus and frequent pains in the head. A few weeks after the onset of the illness, ocular troubles set in with progressive blurring of vision. There was total loss of sight in the right eye two months before admission to hospital. The results of the clinical, laboratory, and ocular examinations corroborated the diagnosis of pulseless disease. Throughout the year in which the patient has been under clinical observation, there has been no change in the cardiovascular state. In a quiet environment and with avoidance of effort, there has been no repetition of the cerebral ischemic episodes or the claudication of the superior extremities. The ocular disturbances have, on the other hand, become progressively worse. Mesenchymal abnormalities observed in the enucleated eye suggested a possible congenital basis for the disease.

Diabetic Amyotrophy. H. Garland. Brit. M. J. 2:1287-1290 (Nov. 26) 1955 [London, England].

A syndrome that includes weakness and wasting of muscles with tendon areflexia, associated with frank diabetes mellitus or at least with impaired glucose tolerance, is described in 12 patients all of whom with the exception of one were over 50 years of age. Less constant features were extensor plantar responses, a raised protein content of the cerebrospinal fluid, and electromyelographic changes in the affected muscles often compatible with a cord lesion and sometimes appearing to be of peripheral origin. There is evidence that some of these cases resulted from a myelopathy and that changes may occur at any cord level, though they are most commonly seen in the lumbar region. Pain of a similar distribution to the amyotrophy was a frequent though not constant feature. The protein content of the cerebrospinal fluid may be normal or raised. At the present time "diabetic amyotrophy" would appear to be the best term to apply to the syndrome. Since it is generally accepted that diabetic neuropathy is usually purely sensory and is determined by peripheral nerve changes only, it may equally well be true that diabetes can produce changes limited to the motor fibers of peripheral nerves. But it would seem that diabetic amyotrophy is always a reversible process no matter where the anatomic disturbance appears to be. Although diabetes mellitus may determine changes in the spinal cord it may presumably result in changes in the peripheral nerves of the same patient at the same time. Sensory loss has been largely absent in the author's patients, but the findings of sensory loss in no way vitiates the diagnosis of "diabetic amyotrophy." Diabetic amyotrophy is the result of uncontrolled diabetes mellitus and is probably always reversible by full diabetic control.

An Evaluation of the Urinary Uropepsin Excretion in Distinguishing Benign from Malignant Gastric Ulcer. S. J. Gray, C. G. Ramsey, R. W. Reifenstein and L. J. Krakauer. Gastroenterology 29:641-652 (Oct.) 1955 [Baltimore].

The uropepsin excretion in the urine reflects the peptic activity of the stomach. It is derived from the secretion of pepsinogen directly into the blood stream by the peptic cells. Pepsinogen is then transported to the kidneys and excreted in the urine as uropepsin. Uropepsin measures the pepsinogen production of the stomach as evidenced by the disappearance of the enzyme from the urine after total gastrectomy and its absence in patients with pernicious anemia. Previous studies indicated that it is an accurate reflection of gastric pepsin secretion. The purpose of this presentation is to evaluate the possibility of distinguishing gastric cancer from benign gastric ulcer by measuring the 24-hour excretion of uropepsin in the urine. Previous studies in this field have been equivocal. The urinary uropepsin excretion was determined in a control group of 265 subjects, consisting of 120 hospitalized patients without demonstrable gastric disease and 145 unselected college students. Similar determinations were performed in 205 patients with duodenal ulcer, 90 patients with gastric ulcer, and 60 unselected patients with adenocarcinoma of the stomach. The diagnosis of gastric ulcer or cancer was established by microscopic examination of surgically resected specimens, postmortem examination, or by clinical evidence of complete healing and disappearance of the ulcer by x-ray and gastroscopic criteria. The authors found that the mean uropepsin output in gastric ulcer was 5,756 units; it was significantly higher than the normal of 3,670 units, although lower than in the duodenal ulcer group in which it was 8,471 units. A low mean uropepsin excretion of 1,815 units was observed in gastric cancer. The lowest mean values (13 units) appeared in 70 patients with gastric atrophy of pernicious anemia. A uropepsin excretion below 1,000 units was found in only 1.1% of the gastric ulcer patients, contrasted to 55% of the gastric cancer group. Uropepsin values above 3,000 units were observed in 100% of the patients with duodenal ulcer, in 79.6% of those with gastric ulcer, and in 21.7% of those with gastric cancer. Although the uropepsin excretion appears to parallel the basal hourly secretions of free hydrochloric acid in the gastric juice, a normal or high uropepsin output was observed frequently in gastric ulcer patients in spite of low gastric acidity. This disparity may prove significant in distinguishing benign from malignant disease. In the presence of an ulcerating gastric lesion, a uropepsin excretion of 1,000 units or less indicates a high probability of cancer. An elevated uropepsin excretion above 3,000 units favors, but does not prove, the benign character of the lesion. Since only 55% of gastric cancer patients excreted less than 1,000 units, the uropepsin determination is not suitable as a screening test for gastric cancer. It may prove useful in conjunction with other screening procedures.

Alkaline Treatment of Acute Allergic Shock. H. G. Clark. J. Michigan M. Soc. 54:1198-1199 (Oct.) 1955 [St. Paul].

In conformity with the acid-anoxi-endocrine theory of allergy, Clark has been giving sodium bicarbonate and potassium bicarbonate, in various proportions and amounts, to patients with acute and chronic allergic manifestations. Five grams of the combined alkalis dissolved in water is given every hour or two for one, two, or three doses with consistently good results, particularly in the acute cases of allergy. Chronic allergic diseases such as asthma involve more than one pathological change and are not so much benefited by the alkalis as is acute allergic shock. In anaphylactic shock due to penicillin, the recovery is rapid and complete, so much so that the author discontinued giving any other medicaments such as adrenalin, aminophyllin, and the antihistaminic drugs. He has resorted in the last eight months to the intravenous injection of sodium bicarbonate to patients with severe allergic reactions to penicillin or other allergic attacks. The solution used is available in an ampul containing 3.75 gm. of sodium bicarbonate in 50 cc. of water. The author also used 1/6 molar sodium lactate. With the intravenous use of the alkali the effect is very rapid, occurring in from 17 seconds to a minute or two; with orally given medicaments, from 20 minutes to an hour elapses before improvement is evident. Time is a very important factor, particularly in allergic shock caused by penicillin, and the intravenous administration may be of vital importance. Histories of four patients are presented that are typical of many others. No other treatment except the alkalis was needed. The dramatic speed of recovery suggests that the alkali corrects some basic physiological mechanism involved in the allergic reaction. Sodium lactate has been used intravenously in five cases of surgical shock and hemorrhagic shock. When more prolonged and less prompt action is desired, such as during a major operation, lactate solution is preferable to the sodium bicarbonate. This last should be used with caution when cardiorenal, hypertensive, and arteriosclerotic diseases are present. It is poorly excreted and has pressor effects. It should not be used in severe edema, since it increases the edema. In these latter cases, the proportion of potassium should be changed. In an emergency these cautions can be ignored, since they may be corrected when the emergency is passed.

Incidence of Clinical Hypersensitiveness to Medications in Patients with Bronchial Asthma. G. Franceschini. Prog. med. 11:431-436 (July 31) 1955 (In Italian) [Naples, Italy].

A study was made of 613 patients with bronchial asthma who were seen at the University of Rome outpatient clinic for allergic diseases from 1952 to 1955 to determine the incidence and type of clinical hypersensitiveness to various medications. Skin reaction tests to exogenous allergens responsible for the asthmatic syndrome were positive in 310 patients, most of them in the 10 to 40 year age group, and negative in the others, most of them in the 40 to 70 year age group. Of the 613 patients, 51 (8.38%) showed clinical hypersensitiveness to drugs; 8.38% of these were patients with a positive skin reaction and 8.24% with a negative skin reaction. Hypersensitiveness to acetylsalicylic acid was the most frequent (3.73%), and this high incidence is ascribed to the fact that acetylsalicylic acid is the medicament used most frequently by patients with bronchial asthma. Hypersensitiveness to aminopyrine and its derivatives was the next most common. The clinical manifestations of intolerance were urticaria, bronchial asthma, angioneurotic (Quincke's) edema, serum sickness, erythema, cutaneous purpura, and fever. In none of the patients were the drugs the first cause of asthma. They did, however, aggravate it, especially when it was already rather grave and had become resistant to the common therapies. Scratch tests with drugs were always negative except in one instance in which a patient showed a positive reaction to acetylsalicylic acid.

Largactil in Treatment of Hemorrhagic Shock. S. Fertitta and E. Scio. *Minerva chir.* 10:811-815 (Aug. 31) 1955 (In Italian) [Turin, Italy].

The antishock action of chlorpromazine (Largactil) was studied in dogs from which about 600 to 1,100 cc. of blood (approximately three-fourths of the total blood volume) was withdrawn. Some of the dogs were given 2.5 mg. of chlorpromazine per kilogram of body weight intravenously before, and another such dose intramuscularly after, the blood was removed. Others that served as controls were not given the ganglioplegic drug. This did protect the animals of the first group from the shock that generally follows a profuse and rapid loss of blood. A soporous state with slowed down reactions to stimuli lasted in these dogs for about 6 hours, but within 24 hours all of them were again normal, and no death was recorded. In the controls, however, the state of shock, with polypnea, tachycardia, drop in blood pressure, and even diarrhea, in some instances, was so pronounced that it caused the death of two animals. The authors attribute the antishock effect of chlorpromazine to its marked adrenolytic action, which prevents the onset of the vasoconstriction that is secondary to the first manifestations of shock. The better tissue oxygenation that this drug brings about also plays a part in preventing the onset of shock.

SURGERY

Direct-Vision Suture of Interatrial Septal Defect During Hypothermia. H. Swan, S. G. Blount Jr. and R. W. Virtue. Surgery 38:858-871 (Nov.) 1955 [St. Louis].

The authors review the history of the surgical methods employed in the treatment of interatrial septal defects. Believing that direct vision is an important principle in this form of surgery, they concentrated their effort on hypothermia, which allows a short period for intracardiac repair under direct vision. Their method consists of reducing the body temperature to approximately 26 C by immersion in ice water. In the past three years, 100 patients having atrial septal defects have been evaluated and, of this number, 30 have been selected for closure of their defect under direct vision during hypothermia. Three had primum lesions; the remainder were of the secundum type. The authors recognize the profound difference in the physiological and anatomic pathology between primum and secundum lesions. They make a strong plea to separate these entities so that comparative evaluations can be meaningful. Of 27 patients having secundum type lesions, 5 had associated cardiac anomalies exclusive of aberrant pulmonary veins entering the right atrium, and 23 survived. Of three patients with primum lesions, only one survived, uncured. Postoperative catheterization data are available on 21 patients and reveal closure of the defect in all but 2. Total closure of the anatomic defect is essential if the disordered physiology is to be cured. Eighty per cent closure will have little or no effect upon the volume of the shunt. For the direct-vision closure of very large defects, a continuous suture is preferable to an interrupted one if complete closure is to be achieved. In the secundum type of atrial septal defects, direct suture during hypothermia is very effective and involves slight risk. Patients with secundum defects who have a large left-to-right shunt should be offered operation at an early age, before they begin to have excessive dilatation of the pulmonary arterial tree, cardiac enlargement, or progressive elevation of pulmonary resistance, since the risk of operation is quite low before these changes occur. Patients with extremely high pulmonary resistance and minimal or reversed shunts have passed the stage at which surgical treatment will be of benefit.

The Diagnosis and Treatment of Tricuspid Atresia. W. L. Riker and R. Miller. Surgery 38:886-902 (Nov.) 1955 [St. Louis].

Tricuspid atresia is not merely a fusion of the valve cusps but an absence of valve structure. Solid myocardium separates the right atrium from the right ventricle. There is always an interatrial septal defect. Variations of this basic pattern depend upon the degree of patency of the pulmonary outflow tract and the position of the great vessels. Three variations of tricuspid atresia are explained. In the past 10 years, 51 patients with tricuspid atresia have been studied at the Children's Memorial Hospital in Chicago. Sixteen patients were not operated on, but 35 underwent aortic-pulmonary anastomosis or similar procedures. The presence of left heart strain and peaked, prominent P waves in the electrocardiogram of a cyanotic infant with relatively normal heart size was diagnostic of tricuspid atresia. A history of cyanosis from birth was almost constant, and dyspnea, weakness, and failure to gain weight were common. Some patients had episodes of unconsciousness, usually following crying or feeding. Decreased exercise tolerance was usual in the older children. A loud, harsh systolic murmur was usually heard best in the third intercostal space to the left of the sternum. Chest fluoroscopy was helpful in that it revealed absence of right ventricular enlargement as an aid in differentiation from other types of cyanotic congenital heart disease. Electrocardiographic evidence of left ventricular hypertrophy was present in every patient in this series. Eighty per cent of the children were less than 3 years old when they came for operation or died untreated. A newly devised Potts-Smith operation was performed on a patient with tricuspid atresia in January, 1947. The authors describe the technique that was gradually developed for use in infants only a few weeks or months old. Of the 35 patients who underwent aortic-pulmonary anastomoses, none died during the procedure, but 5 died within 14 days after operation, either of heart failure or pulmonary infarcts secondary to thrombosis at the anastomosis. Two of the 30 patients who were discharged from the hospital obtained poor clinical results and retained persistent heart failure. The other 28 patients had good immediate results; their cyanosis disappeared, they were normally active, and the spells of unconsciousness did not recur. A few patients had mild congestive failure easily controlled by digitalis. There have been five late deaths. Nineteen of the remaining 25 children, who have been followed for from four months to eight years, obtained good results. Five patients, classified as having fair results, have a mild degree of congestive failure controlled fairly well by digitalis. One patient, with transposition of the great vessels and pulmonary stenosis operated on four months ago, is in congestive failure now, but improvement may occur over the next few months as it has with several patients. Young children with tricuspid atresia often became progressively more cyanotic and dyspneic as their ductus arteriosus narrowed and obliterated. In this group the mortality is practically 100% without operation. Therefore, if an infant with tricuspid atresia becomes progressively more cyanotic and dyspneic and begins to have spells of apnea or unconsciousness, an aortic-pulmonary anastomosis should be performed as soon as possible, even though the patient is extremely young and small.

Repair of the Partial Form of Persistent Common Atrioventricular Canal: So-Called Ostium Primum Type of Atrial Septal Defect with Interventricular Communication. J. W. Kirklin, G. W. Dougherty, H. B. Burchell and E. H. Wood. Ann. Surg. 142:858-862 (Nov.) 1955 [Philadelphia].

A case of so-called ostium primum type of atrial septal defect with interventricular communication is described in a 27-year-old woman who complained of dyspnea, fatigue, and mild chest pain on exertion, of three years' duration. The patient's systemic blood pressure was 96 mm. Hg systolic and 60 mm. Hg diastolic. A systolic murmur, grade 1, heard in the pulmonic valvular region, was more prominent after exercise. The second sound in the pulmonary area was accentuated, grade 1. Roentgenograms and fluoroscopic examination of the chest revealed enlargement of the pulmonary trunk, pulmonary arteries, and right ventricle, with increased pulsation of the pulmonary arteries. The electrocardiogram was interpreted as showing right bundle branch block. A diagnosis of partial form of persistent common atrioventricular canal was made preoperatively and surgical repair was effected as follows. The patient's chest was opened through an anterolateral incision through the fifth interspace. The right pulmonary veins were enlarged and could be seen to empty in the left atrium. The right atrium was enlarged. A soft, short systolic thrill was felt over the base of the pulmonary trunk. The atrial well of Gross was sutured onto the right atrium in the usual fashion. A defect in the lowest portion of the atrial septum measured about 4 to 4.5 cm. This defect was in communication with a cleft between the mitral and tricuspid valve rings and lower down, with a defect involving the portion of the ventricular septum immediately beneath the atrioventricular valves. The mitral valve was competent, and its leaflets were not cleft. The tricuspid valve was competent without regurgitation. A finger could be passed easily from the right atrium into either the left atrium or the left ventricle. A piece of polyvinyl plastic sponge about 3 mm. in thickness was trimmed to the proper size and sutured into place. The well was disconnected after being in place one and a half hours, and the defect in the right atrium was closed in the usual fashion. The postoperative course was uneventful. No evidence of heart block occurred. Study by cardiac catheterization four months after operation showed that the defects in both the atrial and ventricular septums were completely closed, and the heart was hemodynamically normal. The successful complete closure of this complicated type of defect may not be possible in every case. Evidence of mitral insufficiency would be considered a definite contraindication to exploration. A polyvinyl plastic sponge seems ideally suited to use in closure of the septal defects of the partial form of persistent common atrioventricular canal; when carefully sutured to the edges of the defect, the sponge soon becomes incorporated firmly into the septum and seems likely to remain permanently in place.

Some Practical Considerations in the Surgery of Blood Vessel Grafts. R. R. Linton. Surgery 38:817-834 (Nov.) 1955 [St. Louis].

After discussing the indications for reestablishing the arterial continuity of the aorta and major arteries, Linton comments on the various types of grafts: the autogenous venous graft, the homologous venous graft, and the homologous arterial graft, and on the use of synthetic fabrics. He believes that the use of the homologous arterial grafts is a method of treating aortic and major arterial lesions that supplants all others in many patients. It is a feasible procedure today because of better surgical equipment and suture material; the availability of the anticoagulant heparin to prevent the clotting of the blood during the operative procedure and the antibiotics to prevent infection; improved anesthesia techniques, including the catheter spinal type of anesthesia, which has been most commonly used; the better preoperative and postoperative care of these critically ill patients; and last and perhaps most important of all the fact that arterial homografts are now available in blood vessel banks for the performance of these highly technical procedures. The end-to-side type of vascular anastomosis has made it possible to extend the homografting procedures to include cases that could not possibly be accomplished with the end-to-end method. The chief contraindications to this type of surgery are (1) severe coronary disease, which would make these long operative procedures too dangerous to perform, (2) extensive obliterative arterial disease involving the aorta and the major arteries so that the grafts cannot be anastomosed satisfactorily to the host arteries, and (3) obliteration of the popliteal artery and its terminal branches.

The Use of Vessel Grafts in the Treatment of Popliteal Aneurysms. O. C. Julian, W. S. Dye, H. Javid and W. J. Grove. Surgery 38:970-980 (Nov.) 1955 [St. Louis].

The authors report on the results obtained in eight patients with implantation of a vessel graft after a complete resection. One patient had bilateral aneurysms, making a total of nine lesions operated on. Eight of these aneurysms were the result of arteriosclerosis and one was a micotic aneurysm occurring during the course of an acute subacute bacterial endocarditis. Five autogenous saphenous grafts, one homologous vein graft, and three frozen homologous artery grafts were used. One failure to preserve distal artery pulses is reported without serious results other than significant claudication. In this patient a lumbar sympathectomy failed to relieve this symptom. A second patient is included in whom sympathectomy was performed before the aneurysmectomy and the graft. The remaining seven lesions were removed and grafted without lumbar sympathectomy. In seven patients the pulse at the ankle was either restored or maintained. Two operations resulted in healing of gangrenous area on the toes. The authors noticed in all of the large aneurysms that the factor of elongation in the stretched vessel tended to angulate the anterior tibial artery. This should be considered one of the methods by which the pulsatile flow to the ankle is obstructed. In addition, a concomitant obstructive arteriosclerotic lesion may be present distal to the aneurysm. A second consistent observation was the infrequency with which open arteries branched from the aneurysm itself. Such arteries as the medial and lateral superior geniculate were either occluded in the wall of the aneurysm or were very small. After obtaining proximal control of the artery above the aneurysm, it was possible to open the aneurysm and, after evacuating clots, obtain control of these vessels flush with the wall of the aneurysm externally. Since they were small or occluded, it did not seem important that they be subjected to special handling. Wherever possible, a frozen homologous artery graft was used. Vein grafts were used when it was inconvenient to use an artery or when an artery was not available. There has been no observable difference in this period of observation in the late behavior of the two types of grafts.

Surgical Implications of Non-Thrombocytopenic Purpura. J. P. Muldoon, A. M. Berg and D. W. Kinnaird. Ann. Surg. 142: 817-823 (Nov.) 1955 [Philadelphia].

The occurrence of Henoch-Schönlein (anaphylactoid) purpura with prominent skin, joint, visceral, cerebral, renal, and ocular manifestations is described in three men, aged 59 years, 19 years, and 38 years, respectively. The presence of a palpable mass in the left upper quadrant of the abdomen associated with generalized, intermittent abdominal pain was a deciding factor in favor of laparotomy in the 59-year-old patient. A sharply demarcated segment of the jejunum was observed to be scarlet red, greatly enlarged, and indurated; this necrotic area of the jejunum influenced the surgeon, who feared perforation, to perform a segmental resection and end-to-end anastomosis. The patient died on the seventh postoperative day. The absence of joint pain and purpuric lesions of the skin on the admission of the 19-year-old patient with pronounced tenderness of the abdomen obscured the clinical diagnosis. Laparotomy was performed and the diagnosis of nonthrombocytopenic purpura was made from the appearance of the ileum. Postoperatively the patient was treated with rutin, and the purpura disappeared gradually. Abdominal cramps, severe vomiting, and rectal bleeding made exploratory laparotomy unavoidable in the third patient, but, in the lack of manifestations other than visceral, the diagnosis of nonthrombocytopenic purpura was made only at the surgical intervention. Postoperatively he was treated successfully with rutin and cortisone. The various manifestations of nonthrombocytopenic purpura may bring the patient to the neurologist, dermatologist, internist, ophthalmologist, or surgeon. The surgical implications are of paramount importance. There are only two indications for laparotomy, namely, perforation and intussusception. If laparotomy is performed and neither of these conditions exist, resection is not indicated, as the lesion will regress spontaneously. However, if impending perforation is suspected, the segment involved should be resected.

Pneumonectomy in a Two-Month-Old Infant with Pleuropulmonary Staphylococcia. M. Chevalley, J.-P. Binet and G. Vermeil. Presse méd. 63:1393-1394 (Oct. 19) 1955 (In French) [Paris, France].

Surgical treatment of staphylococcic infection in infants should be used only as a last resort, after medical treatment and drainage of air and pus have failed. The authors have most often used lobectomy in their refractory cases, but in three instances they performed pneumonectomy. Two of these patients died, one of associated purulent pericarditis and one from aspiration of vomited milk after a satisfactory postoperative result. The history of the third patient, a two-month-old baby girl, is presented in detail. Operation was considered indicated because of a sudden worsening of the general condition and persistence of a large bronchopulmonary fistula, despite initial improvement with antibiotic therapy and drainage. The postoperative course ran smoothly, but there was partial disunion of the thoracotomy scar and some local suppuration caused by the staphylococci, which had become resistant to all antibiotics. The authors realize that this serious operation, performed in a young child, is risky in many ways. In the case reported, however, it was justified because it clearly saved the patient's life.

Fibrosarcoma of Breast. P. A. Lodi and M. de A. Figueiredo. Rev. Assoc. med. brasil. **2**:49-54 (Oct.) 1955 (In Portuguese) [São Paulo, Brazil].

Two hundred ten cases of malignant tumor of the breast were observed in a large hospital of Belo Horizonte during the last 30 years. Three patients, two women and a man, had sarcoma of the breast. A woman 42 years old requested treatment for a small nodule that appeared on the right breast four months prior to consultation. Histopathological examination of the removed nodule showed sarcoma. A radical mastectomy followed. Histological examination of the removed breast showed a fibrosarcoma, which had originated on the basis of a preexisting fibroadenoma. The patient is in normal health with a survival period of more than 19 years since the operation. The operative scar and roentgenograms of the thorax are normal. The satisfactory results are due to early operation, moderate degree of malignancy of the tumor, and radical type of mastectomy. Fibrosarcoma of the breast is rare. The tumor may appear as a small nodule that remains unchanged for several years and then starts growing rapidly, or it may grow rapidly soon after it appears. Metastases and recurrences are frequent. Metastases travel via the blood to the lungs, pleura, liver, mediastinum, and other structures. In rare cases the tumor may give metastases by way of the lymph nodes. Malignancy of the tumor depends on the degree of histological differentiation of the tumoral tissue. Poorly histologically differentiated fibrosarcomas are more malignant than well-differentiated tumors. The treatment consists of radical mastectomy that prevents metastases through the lymph nodes, gives permanent cure, and does not interfere with the functional capacity of the arm.

The Value of Achlorhydria as a Screening Test for Gastric Cancer: A 10-Year Report. C. R. Hitchcock, W. A. Sullivan and O. H. Wangensteen. Gastroenterology **29**:621-632 (Oct.) 1955 [Baltimore].

In view of the high death rate from gastric cancer, the authors aimed at its early detection, preferably while symptoms are still absent. The studies described were begun in July, 1945, as a joint project between the departments of pathology, radiology, medicine, and surgery at the University of Minnesota Hospitals. All outpatient registrants over the age of 50 in the University Hospitals were tested for gastric hydrochloric acid secretion by the method of intubation, and three injections of 0.5 mg. of histamine phosphate were used for gastric stimulation. Those classified as achlorhydric or hypochlorhydric were selected for study. A total of 4,936 gastric analyses were performed and 1,563 patients were found to fit the criteria for this study. A group of 77 pernicious anemia patients, and a group of 107 achlorhydric patients were added to the study. The investigations indicated that patients with pernicious anemia should be subjected to gastric roentgen examinations every 6 months, and those with achlorhydria or hypochlorhydria every 9 to 12 months. In patients with gastric polyps, not only should the gastric polyps be removed but roentgen examination of the stomach should be carried out every 9 to 12 months. The authors found that the "silent" interval of gastric cancer lasted on the average 18 to 24 months. With a program of periodic reexamination of the more highly susceptible portion of the population, there is reasonable assurance that many more gastric cancers can be detected in the presymptomatic phase of the disease than has heretofore been possible. During a nine and one-half year follow-up of 1,747 patients who were designated as gastric cancer precursor patients, 55 gastric polyps and 19 gastric cancers were found. Of the 19 patients with gastric cancer, only 4 had symptoms that might have led them to seek diagnosis of their condition earlier. The incidence of gastric cancer in the achlorhydric group was 3.2 times the expected national incidence for persons in the same age group. The hypochlorhydric group showed 2.6 times the incidence, and the pernicious anemia group showed 18.3 times the incidence. The incidence in all the precursor groups was 3.8 times the national incidence.

Postmortem Skin Homografts in the Treatment of Extensive Burns. C. P. Artz, J. M. Becker, Y. Sako and A. W. Bronwell. A. M. A. Arch. Surg. **71**:682-687 (Nov) 1955 [Chicago].

Ideally, burned areas should be grafted with sheets of autogenous skin, but in the extensively burned patient there may be insufficient donor sites, and such patients may be unable to tolerate the additional trauma of having skin removed. Application of skin homografts in these patients provides only a temporary coverage of the wound, but this procedure provides time during which the patient's condition may be improved. After the application of homografts, there is less infection, less fibrosis, and less discomfort. Usually the patient's morale improves and his nutritional intake is increased. Thus, although homografts provide only a temporary coverage for the wound, they may be lifesaving in extensively burned patients. The use of skin from a cadaver is much more practical than homografts from living donors. Clinical experience with postmortem homografts during the past two years has demonstrated the success of these grafts in extensively burned patients. Typical case histories of five patients are recorded. Grafts were removed from donor bodies from three to seven hours after death. They survived from two weeks to 47 days. The use of postmortem homografts provided an easy, practical method of achieving temporary wound closure in extensively burned patients. The authors feel that postmortem homografts should be used more extensively. Further investigation is necessary on the time interval after death in which skin may be removed and on methods and length of storage prior to grafting.

Use of a Tantalum, Steel Wire, or Nylon Mesh in Surgical Repair of Abdominal Wall. N. Petrina and T. Mercadante. Minerva chir. **10**:747-754 (Aug. 15) 1955 (In Italian) [Turin, Italy].

The authors used a tantalum, steel wire, or nylon mesh for the surgical treatment of massive postoperative ventral hernia, recurrent inguinal hernia, and large umbilical hernia in 36 patients in whom there was reason to expect eventual recurrences had the standard surgical procedures been adopted. The wound healed by first intention in 30 instances and by second intention in 4. Only in two instances (in both a steel wire mesh had been used) was it necessary to perform another operation to remove the mesh. The resistance of the wall was not impaired, however, because an extensive connective tissue reaction had already taken place. The three types of mesh were always well tolerated; they did not cause immediate or late disturbances or irritation; and there was no relapse, not even in one patient who had had six recurrences in a short time. The tantalum mesh was the best of the three types, and, although infection occurred in 3 of the 15 patients in whom it was used, it was never necessary to operate again to remove the mesh. The steel wire mesh was tolerated less well. This does, however, have the advantage of being more resistant than the tantalum mesh, which has a tendency to break transversally, as a rule 6 to 10 months after its implantation. The nylon mesh was tolerated as well as the tantalum mesh and the wound healed by first intention in all the 11 patients in whom it was used. The authors' patients have been followed for from one and one-half to three years.

Experiences with a New Local Antibiotic (Nebacetin) in Surgery. H. Holzhausen. Medizinische, No. 44, pp. 1540-1545 (Oct. 29) 1955 (In German) [Stuttgart, Germany].

Nebacetin, a combined proprietary preparation of neomycin and bacitracin, which is on the market in the form of a solution, tablets, ointment, and powder, was used as an antibiotic for the local treatment of local bacterial infections in 100 patients, 58 of whom had been admitted to the surgical clinic of the University of Tübingen, Germany, and 42 treated ambulatorily. Twenty patients with complicated fractures, abscess of abdominal walls, empyema after pleurisy, chronic osteomyelitis, chondroma of the third metacarpal bone, necrosis of the femur, and subphrenic abscess, respectively, had previously been given penicillin, streptomycin, and sulfonamide preparations for periods up to one year but had not responded to antibiotics and chemotherapy. The other 38 hospitalized patients had infected injuries, postoperative infections, furuncles, carbuncles, and fistulas respectively. The ambulatory patients had infected injuries of fingers, paronychia, abscesses, furuncles, and carbuncles. The results obtained in these 100 patients were evaluated according to Meleney and Johnson's suggestions (J. A. M. A. 133:675 [March 8] 1947) as follows: results were excellent in 40 patients who were favorably influenced in 3 days, good in 43 who were favorably influenced in 8 to 10 days, and questionable in 7, and no effect was obtained in 10. Sixteen of the 20 refractory patients were favorably influenced. Nebacetin appears to be indicated particularly for the preparatory treatment of infected wounds for skin grafting. Compresses or continuous irrigation with Nebacetin caused the dirty coating of wounds to clear and produced fresh granulation surfaces. Local treatment with Nebacetin consisting of puncture, instillation after the removal of necrosis, and irrigation also proved highly effective in furuncles, carbuncles, abscesses, and fistulas. The value of local treatment with Nebacetin, preceding the surgical removal of foreign bodies, sequestrums, or necroses in cases of fistulas, consisted of making the operative area free of bacteria. Instillation of Nebacetin in residual empyema cavities made them free of bacteria for sterile surgical intervention. Infected injuries healed rapidly when Nebacetin powder or ointment was applied. Postoperative infections of wounds responded satisfactorily to dusting with Nebacetin powder. Continuous irrigation with Nebacetin made sterile open wound treatment possible. Failure of Nebacetin therapy resulted when it was impossible to achieve sufficiently close contact of the drug with the focus or adequate concentration of the drug, or when surgical intervention such as sequestrectomy was indispensable. The breadth of the spectrum of Nebacetin is similar to that of penicillin combined with streptomycin. The effect of Nebacetin is not inhibited by blood, plasma, pus or necrotic tissue. Ferments similar to penicillinase are not known for bacitracin and neomycin. The advantages of the Nebacetin therapy are good tissue tolerance, low incidence of resistance, rare sensitization, and broad spectrum effect. Nebacetin may be combined at any time with other antibiotics.

NEUROLOGY & PSYCHIATRY

Long Range Treatment of Multiple Sclerosis with Pancorphen. J. Wilder. J. Nerv. & Ment. Dis. **121**:545-552 (June) 1955 [New York].

Pancorphen is a heart muscle extract that has been digested with pancreatic extract; phenol is added to render it sterile and to increase its therapeutic effect. The author has tried this extract in hundreds of patients in the course of 25 years. The drug is generally administered intravenously in a series of five injections. The treatment is characterized by decided focal neurological reactions with very weak systemic reactions. Vasodilation is an outstanding clinical effect. Observations on 140 patients who were treated with only one series of Pancorphen injections were described by the author in an earlier report. In this paper he deals with the question whether a series of five Pancorphen injections, which yielded temporary, partial remissions in a high percentage of cases should be repeated. The observations he reports were made on 13 patients who received multiple treatment courses and who were followed for years. He found that partial remissions occur even in old and advanced cases, but in the form in which the treatments are now given no cures are produced. Repetition of the treatment course for from 4 to 26 times neither arrests the disease nor does it prevent relapses. Results are less favorable in advanced than in less advanced cases. Treatments started at the beginning of an attack produce better results than those started late in an attack. It appears that better results are obtained if treatments are repeated two or three times a year than at longer intervals. Progressive remissions are more frequent with than without Pancorphen treatment. Furthermore, the duration of attacks may become shortened to such a point that one may speak of aborted attacks. The author is unable to give a definite reply to the question whether the five-injection Pancorphen treatments should be repeated indefinitely at the rate of three times a year, but he is convinced that the treatments should be given at the onset of every attack, during active attacks regardless of duration, and during inactive as well as regressive remissions. Treatment during active phases requires more caution and more individualization than in the inactive stages. The active periods of disease, progressive attacks, or progressive remissions hold more promise for effective therapy than the inactive periods of stabilized defenses. The author feels that for the time being a series of five injections strictly individualized should be given three or four times a year plus emergency treatment in case of new symptoms.

The Use of Frenquel in the Treatment of Disturbed Patients with Psychoses of Long Duration. F. Rinaldi, L. H. Rudy and H. E. Himwich. Am. J. Psychiat. **112**:343-348 (Nov.) 1955 [Baltimore].

Frenquel, previously designated as MER-17, is alpha-4-piperidyl diphenyl carbinol hydrochloride. It is the gamma isomer of Meratran. Despite the structural resemblance between the two drugs, pharmacologically their actions are entirely different. Unlike Meratran, which increases activity in laboratory animals and is a stimulant for human beings, Frenquel diminishes spontaneous activity in animals. The authors studied the effects of Frenquel on disturbed patients with a relatively poor prognosis, unlikely to reveal sudden changes, that is, patients with long histories of hospitalization. The average duration from the time of commitment was 17½ years with a range from 2 to 39 years The study began with the clinical evaluation of each patient in accordance with nine criteria. By this method a psychiatric profile of the personality structure was obtained. During the period of the study, rounds were made twice daily to determine any changes in the patients. The drug was given in a dose of 10 mg. twice a day. The observations of attendants were taken into consideration in making evaluations. Neither physicians, attendants, nor patients knew who was and who was not receiving the drug, until after the investigators had committed themselves on the status of each of the patients studied. Twenty-one of the 39 patients exhibited definite improvement. In seven others improvement was doubtful. Eight others remained unchanged and three became worse. The three patients whose symptoms were aggravated all had paranoid reactions, but 12 patients with similar diagnoses showed improvement. The authors feel that the results obtained are sufficiently encouraging to indicate use of this drug in other patients with psychoses.

Low Normal Intelligence and Schizophrenia. C. H. Fellner and P. L. Weil. Am. J. Psychiat. **112**:349-353 (Nov.) 1955 [Baltimore].

After several years of experience with insulin coma therapy on schizophrenic patients, the authors have come to the conclusion that the intelligence level of the schizophrenic patient is of great importance in the prognosis. The present survey is of patients belonging to the lower stratum of what is considered the normal variations of human intelligence. These were dull persons; their I. Q. was between 75 and 85, and the level of their social and scholastic achievements was correspondingly low. Thirty schizophrenic "dullards" were given a full course of insulin coma therapy, combined, in 10 patients, with electroplexy. The results are compared with those of the same treatment in schizophrenic patients of originally average normal intelligence. The great discrepancy between the results achieved in schizophrenic patients of originally average normal intelligence and "dullards" appears to be real, and the authors consider the prognosis very unfavorable in the latter. They doubt that insulin coma therapy is indicated in the schizophrenic patient of low intelligence.

Neuropathic Aspects of Bronchopulmonary Cancer. N. Romano and R. A. Eyherabide. Rev. Asoc. méd. argent. **69**:288-290 (Aug. 15-30) 1955 (In Spanish) [Buenos Aires, Argentina].

Bronchopulmonary cancer metastasizes readily. Frequently it produces metastases in the nervous system, the brain, and the spinal cord. The symptoms are those of intracranial hypertension plus the neurological symptoms, which vary with the location of the metastases, masking the symptoms of bronchopulmonary cancer. The patients complain of dizziness, headache, and pain, which is relieved by roentgen therapy, and sometimes of convulsions and tremor. Hemiplegia and mental deterioration occur in all cases. The cerebral metastases travel by way of the blood and are mainly located in the sylvian territory. Cerebellar metastases are rare and give origin to a typical cerebellar syndrome. A differential diagnosis between primary and metastatic cerebral tumor is feasible from the results of clinical examination of the patient and roentgen examination of the chest. Prior to the appearance of neurological symptoms, all patients pass through an attack of acute bronchopulmonary disease. The roentgenogram of the thorax shows in all cases marked shadows of tumoral pulmonary atelectasis. Intrabronchial tumors originating in the apex of the lung diffuse directly or through the lymph nodes to the upper vertebrae, causing in succession the painful thoracotracheal and apicocostovertebral syndromes and Pardal's syndrome of anginal pain, with medullary compression and destruction of the vertebrae. When the tumor grows in other areas of the lung, the metastases travel by way of the blood, causing medullary compression of the vertebrae in the lower segments of the spine. The authors report four cases. Autopsy confirmed the roentgen diagnosis of cerebral or cerebellar metastases from cancer of the lung in all cases. The histological type of the metastases conformed to that of the pulmonary cancer. The authors emphasize the importance of clinical examination of the respiratory tract and of roentgen examination of the chest in all patients with neurological symptoms or with typical lesions of the nervous system, with the aim of detecting probable presence of cancer of the lung.

GYNECOLOGY & OBSTETRICS

Evaluation of 13,797 Routine Cervical Smears in a Cytology Center. W. S. Rogers, J. E. Ayre and B. Millar. Obst. & Gynec. 6:487-492 (Nov.) 1955 [New York.].

Of 13,797 routine initial smears (made from cervical cell scrapings in almost all the cases), which were sent to a cytological center for examination in the course of one year, 162 (1.2%) were classified as malignant, 43 (0.3%) as atypical or suspicious, and 214 (1.5%) as precancerous. Clinical description of the cervix revealed a suspicion of malignancy or a lesion in only 20.8% of the group with smears classified as malignant, in 22.2% of those with an atypical or suspicious smear, and in 5.5% of those with a precancerous smear. The remaining patients were described as showing inflammatory changes or erosions. The large number of unsuspected cases is significant. Correlation with microscopic findings may be difficult but should be thorough before advising a patient that she needs no further studies. An appeal is made for the routine widespread use of cytodiagnosis as the only present feasible method of control of cancer of the cervix. The ability to detect the precancer cell complex in cervical cell scrapings provides a potent tool in cancer prevention.

Influence of Follicular Hormone on Corpus Carcinoma. H. Husslein and E. Schüller. Arch. Gynäk. 187:20-38 (No. 1) 1955 (In German) [Munich, Germany].

On the basis of a survey of the literature and of 601 cases of carcinoma of the body of the uterus that were observed at the Second University Womens Clinic of Vienna during the years 1925 to 1953, the authors attempt to demonstrate that corpus carcinoma grows more rapidly and appears earlier under the influence of estrogens. The following factors from gynecologic pathology indicate this: (1) the concurrence of cystoglandular hyperplasia and adenocarcinoma in the histological picture; (2) atypical hyperplasia appearing as a precancerous condition and through transitional forms leading to true carcinoma; (3) the chronological sequence of hyperplasia and carcinoma; (4) the increased incidence of corpus carcinoma in connection with ovarian tumors that secrete estrone (follicular hormone); (5) the numerous cases of corpus carcinoma after prolonged treatment with estrogenic substances; and (6) the observation that women with belated menopause and prolonged estrogenic stimulation have a higher incidence of corpus carcinoma. Then there is the observation that corpus carcinoma occurs rarely or not at all after surgical castration, but it does occur after roentgen castration, the latter not completely blocking estrogenic stimulation. Furthermore, corpus carcinoma does not occur during sexual maturity and normal biphasic cycles, and its rare occurrence in young women is usually preceded by prolonged cyclical disturbances, particularly by anovular cycles. Knowledge of the role of estrone in corpus carcinoma should be utilized for the prophylaxis. The prolonged action of estrogen must be avoided even during sexual maturity; it must be interrupted either by progesterone or effectively suppressed by testosterone. Menopausal hyperplasia must be counteracted not only with local measures but also by administration of antagonists. Atypical endometrial hyperplasia must be suspected of being a precancerous condition and should be arrested by large doses of testosterone. Prolonged administration of large doses of estrogens should be avoided particularly during the climacteric and the early menopause; testosterone is to be preferred during this period. If there is a tendency to cancer, the use of estrogenic substances is absolutely contraindicated. If castration becomes necessary it should be accomplished by surgery rather than by roentgen treatment. The function of the liver in the metabolism of estrogenic substances should be supported by the administration of vitamins of the B complex.

Ten Thousand Vaginal Smears in the Private Practice of Gynecology. M. S. Allan. Obst. & Gynec. 6:482-486 (Nov.) 1955 [New York].

Ten thousand examinations (20,000 slides) were made on vaginal smears from 5,949 private gynecologic and obstetric patients in the course of six years. Two slides were collected from every patient, one obtained from the vaginal pool of secretions and one by aspiration from the cervical canal. Of the 5,949 patients, 5,666 (95.2%) had smears that were classified as normal or atypical, 230 (3.9%) had smears that were called suspicious, and 53 (0.9%) had smears that were called positive. Included in the positive classification were 16 patients whose original smears were classified as suspicious. The 246 patients whose smears were suspicious were subjected to repeated examinations, and the 16 whose smears eventually became positive did so within an average time of 10 months; the 16 patients averaged five smear examinations each and most of them were in a younger age group. Pathological confirmation of malignancy was obtained in 45 of the 5,949 patients, and 39 of the 45 had smears classified as positive before the pathological confirmation, an accuracy rate of 86.7%. Five of the other six patients had smears called suspicious; by adding these to the definitely positive smears, an accuracy rate of 97.8% results. Among the patients with proved malignancy, 26 had carcinoma of the cervix, 17 of which were of the early type, and 18 had carcinomas of the endometrium, 7 of which were of the early type; one patient had an ovarian metastasis. Deducting the 45 patients with malignancy from the 5,949 patients under consideration, there remain 5,904 who have no cancer. Smears from 14 of the 5,904 patients were at one time or another called positive; 3 of these 14 patients were lost to follow-up, 5 proved to be false-positive, and 4 continued to have positive or suspicious smears. Twenty-four of the 45 patients with proved malignancy had early carcinoma and only 3 were really advanced cases. Comparison of the readings of cervical smears with those taken from the vagina showed that the cervical smear would have a higher classification in the ratio of 5:1. A strong plea, therefore, is made to incorporate a cervical smear with the vaginal smear in every examination. The author's data suggest that early cancer that had not been detected in any other manner was indicated frequently by the smears and later confirmed by biopsy. Many suspicious smears showing dyskaryosis were found. Patients thus were selected for careful watching because of the likelihood of their developing cancer in the future. Smears proved helpful in the preöperative work-up of gynecologic patients. Smears also provided an added incentive for patients to appear for periodic general and gynecologic examinations. The smear proved to be a simple and effective means of hormone assay. Unsuspected nonmalignant conditions were revealed.

BOOK REVIEWS

Hiroshima Diary: The Journal of a Japanese Physician, August 6-September 30, 1945. By Michihiko Hachiya, M.D., Director, Hiroshima Communications Hospital. Translated and edited by Warner Wells, M.D. Cloth. $3.50. Pp. 238. University of North Carolina Press, Box 510, Chapel Hill, 1955.

"Hiroshima Diary" may become a medical and literary sensation, and it certainly will be widely read. It is better than most best sellers, for it is devoid of the usual literary trickery. Dr. Hachiya has written of the critical days following the dropping of the first atomic bomb on his native city with engaging simplicity and beauty of expression. With him you live every moment, for he speaks as one speaks only to a diary. If you want to know what it is like to live in a house that is bombed and be called on (as you may some day be) to face the medical problems of catastrophe; if you want to see what it is to put your professional skills to the greatest test imaginable; if you want to see how one man faced problems that you, as a physician, should anticipate, then spend a few hours with Dr. Hachiya. He was wounded and barely able to make his way in the semidarkness to his hospital. Of this he writes: "I paused to rest. Gradually things around me came into focus. There were shadowy forms of people, some of whom looked like walking ghosts. Others moved as though in pain, like scarecrows, their arms held out from their bodies with forearms and hands dangling. These people puzzled me until I suddenly realized that they had been burned and were holding their arms out to prevent the painful friction of raw surfaces rubbing together. . . . I saw a naked man, and it occurred to me that, like myself, some strange thing had deprived [him] of [his] clothes. An old woman lay near me with an expression of suffering on her face; but she made no sound. Indeed, one thing was common to everyone I saw—complete silence." Dr. Hachiya takes the reader with him through the six days when, bedridden, he observed the activities of those around him and tried from his wooden pallet to satisfy his curiosity as to just what had hit Hiroshima. This curiosity finally led him to the mosaic-like construction of a theory of irradiation sickness in a fine bit of scientific detective work, and in this sense his book has all the drama and suspense that one finds in the tales of a great sleuth. When his wounds had healed enough for the sutures to be removed, he plunged with vigor into his duties as director of what was left of one of Hiroshima's largest hospitals. What the reader hears of the day-to-day problems of patient care, sanitation, and supply under these conditions is no pedantic recitation of a dull man but a vivid description by a man of warmth, perception, intelligence, and great professional ability. Admirably translated, "Hiroshima Diary" is a graphic picture of the destruction that man can wreak on man. It holds many lessons for the medical profession, and it may be read with profit by every physician and medical student.

The Thyroid: A Fundamental and Clinical Text. Editor: Sidney C. Werner, M.D., Sc.D. (Med.). With 60 contributors. Cloth. $20. Pp. 789, with 130 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1955.

The editor of this volume remarks that the profusion of books on the thyroid requires justification for the introduction of a new one. He believes that the recent growth of medical knowledge in general and of knowledge of the thyroid in particular creates a need for a new volume. He questions whether any one man can completely cover the field of thyroid function and disease. This book is divided into 45 chapters written by 60 contributors, including surgeons, internists, and radiologists. Part 1 deals with the physiology of the thyroid, the thyrotropic secretion of the anterior pituitary, effects of steroids and of stress, the biochemistry of the thyroid hormone, and the comparative and microscopic anatomy of the thyroid. Part 2 covers basal metabolism, serum precipitable iodine, serum cholesterol, radioiodine, and miscellaneous tests. Part 3 discusses embryologic development, surgical anatomy, physical examination, pathology, nontoxic goiter, thyroid cancer, hyperthyroidism, hypothyroidism, and thyroiditis. This is a reference book rather than a textbook, but it contains material of interest to medical students and, in some instances, even to the laity. There is a brief discussion of nuclear physics and the use of radioisotopes that should be of great value to older practitioners who graduated before radioisotopes were discovered. The book is well written. The editor has skillfully woven the numerous contributions together. There is little repetition despite the large number of contributors. This book is a valuable addition to the literature on the thyroid. Its greatest defect is that it has no author index.

Psychiatry for the Family Physician. By C. Knight Aldrich, M.D., Associate Professor of Psychiatry, University of Minnesota Medical School, Minneapolis. Cloth. $5.75. Pp. 276, with 18 illustrations. Blakiston Division, McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36; 95 Farringdon St., London, E.C.4, England, 1955.

Despite the many books on psychiatry for the general practitioner, this one fills a real need. It is not a textbook, but it begins with fundamentals and develops a logical basis for understanding of the emotional problems of patients. Enough discussion of dynamics is included to make the text understandable without becoming weighty. It is refreshing to find understanding rather than techniques emphasized in the care of patients with emotional problems. The chapter on treatment is especially good as a broad guide for the handling of these problems. The value of the book would have been enhanced if it had been presented in textbook style to provide the reader with a means of quick access to specific topics. The index makes up in part for this deficiency. There is a useful bibliography. The book can be heartily recommended.

Caring for the Sick Child at Home. By Marion Lowndes. Cloth. $3. Pp. 157. Westminster Press, Witherspoon Building, Philadelphia 7, 1955.

This book was written to help mothers cope with the problems that arise when there is a sick child in the home. It stresses the type of care that an average mother can give and does not attempt to turn the mother into a professional nurse. It points out a multitude of things that can be done in an efficient and practical manner to simplify the care of the child and also to make the situation as simple and relaxing as possible for the mother herself. The suggestions should be particularly valuable for any mother faced with a long-term illness in her child or with a prolonged convalescent period. The chapters cover all phases of care of the sick child in the home, including the following subjects: the sick room itself and the equipment that should be located there; local agencies where the mother may obtain special equipment if needed; substitutions that can be made by the resourceful mother from materials at hand in the home; a sample schedule of activities and care for the patient throughout the day; directions for collection of specimens, temperature taking and bathing; instructions on how to follow the orders of the physician and especially on how to administer the medicaments he prescribes; and sickroom recreation for children of various ages. There is an excellent chapter on contagious diseases, including tabulations containing pertinent information concerning the various communicable diseases, with emphasis on isolation techniques in the home. There is also an informative chapter on accident prevention and one on emergency measures that can be instituted by the mother until the doctor arrives. The author's approach is sensible. The style is fluent, and the book is easy to read. The directions should be easy for the average mother to follow. This book should be of value to any mother with a sick child under her care at home.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

QUERIES AND MINOR NOTES

WATER AND MILK SUPPLIES FOR TRAVELERS

To the Editor:—*A woman and an infant aged 15 months have to travel south of the border for some time. She is worried regarding water, milk supply, and leafy vegetables. I know boiling the water and milk will do the trick, but is there any other method of safeguarding these, and what can be done as regards the leafy vegetables?* *M.D., New York.*

Answer.—It is customary to advise travelers to areas where there is reason to doubt the safety of water and milk supplies to resort to some form of physical or chemical treatment of water and milk. If pasteurized milk is not available one can in many circumstances provide beforehand or obtain locally adequate supplies of canned whole, condensed, evaporated or powdered milk that can then be reconstituted by the addition of boiled water. With regard to water the simplest procedure not involving chemical treatment is to boil all water used for drinking, washing, bathing, brushing the teeth, and laundry. The latter is frequently overlooked, and in some unsanitary areas abroad may be a source for cutaneous or systemic or gastrointestinal infections. For drinking purposes and for the treatment of small quantities of water tetraglycine hydroiodide has been found effective in destroying cysts of Endamoeba histolytica. Such water purification tablets (globaline) are widely used effectively. It is generally not recommended that leafy vegetables such as lettuce, which may be infected by virtue of local unhygienic handling, washing, and storage practices, be consumed at all in the raw state. Commercial vinegar and potassium permanganate are frequently used to wash leafy vegetables in certain tropical areas, but there is no reliable assurance that such treatment will prevent infection.

SURGERY FOLLOWING MYOCARDIAL INFARCTION

To the Editor:—*A man had a moderately severe myocardial infarction. Eight weeks later an appendectomy was performed for an acute gangrenous appendix. He developed ventricular tachycardia nine days postoperatively and died in spite of quinidine therapy. 1. What is the added mortality risk for a patient who requires surgery so soon after a myocardial infarction? 2. In such a patient would it be advisable to give continuous antibiotic therapy, and, if necessary, do elective surgery for appendicitis or appendical abscess at a later date? 3. If immediate surgery is done, what precautions must be taken?* *J. A. Mishkin, M.D., Watertown, N. Y.*

Answer.—Comment is made on the relationship between (1) a moderately severe myocardial infarct, (2) operation for appendicitis, and (3) death. The time interval between the coronary attack and appendicitis was eight weeks and between the operation and death was nine days; these time intervals are important. The nine-day interval indicates that the operation for appendicitis had nothing to do with death. If it were a factor, death would have occurred during or immediately after the operation. This patient developed ventricular tachycardia that, no doubt, was followed by fibrillation. This disturbance in mechanism is the usual cause of death after coronary artery occlusion. The greatest danger from this is in the first few days of a critical 14-day period. Operation should not be done during this period. The risk of operation is high during the first week and tapers off during the second week. Antibiotic therapy should be used and the abscess drained or the appendix removed after this two-week period. Operation is not without danger after this initial period, but, if urgent, it can be done. Inhalation anesthesia should not be used. Spinal anesthesia or local anesthesia are less dangerous. The patient should be placed in the most comfortable position for him to breathe. He should be spared all pain, because pain can produce dangerous reflex responses on the heart. Operation should be done with dexterity. The patient should be in contact with his surroundings and should be calm and cooperative. It is probably not advisable to use a face mask for administration of oxygen. The surgeon should be prepared to defibrillate the heart if death occurs. There is a possibility that the heart can be started to beat again because the death factor is often small and reversible. Elective operations may be done six months after the attack.

INSECTICIDES USED IN TOBACCO RAISING

To the Editor:—*Are there any benzin ring compounds or insecticides employed in the curing of tobacco or the manufacturing of cigarettes? Have cigarettes ever been considered as a possible etiological factor in aplastic anemia?*

S. L. Blum, M.D., Beaumont, Texas.

Answer.—There is no "benzin" ring, but considering hydrocarbons in general it is observed that those that have attracted attention in connection with smoking are the fluids of lighters. Theoretically some benzene could enter lighter fluids. Such substance is an established source of aplastic anemia. Benzene may not be expected to appear in such fluids since there are much better agents, but its homologues, toluene and xylene, might be used to provide luminosity. Arsenic compounds are the archetype of insecticides employed in tobacco raising. Thousands of tons have been so employed. On a smaller scale scores of other insecticides have been introduced. Presently there is no proof that any insecticide in tobacco measurably is harmful to tobacco users, although tobacco growers may have been damaged. One might assume that if arsenic in tobacco contributed to the rising rate of pulmonary cancer, its action would not be limited to cigarette tobaccos, since cigar tobaccos are equally treated with arsenicals and no high frequency of lung cancer has been ascribed to cigar smoking, however other factors such as the inhalation of smoke by cigar smokers as compared with cigarette smokers must be considered.

CARBON DIOXIDE TOXICITY

To the Editor:—*A patient who works in a frozen food refrigerator states that the carbon dioxide content is higher than normal and that it gives him a headache. Is carbon dioxide in concentration of less than 20% considered toxic? If so, what is the maximum allowable concentration? What is the minimum allowable concentration of oxygen for moderate manual labor, such as packing cartons on a truck? Would unpackaged fresh vegetables in a refrigerator emit any toxic gas other than carbon dioxide?*

James N. Dewane, M.D., Evanston, Ill.

Answer.—Carbon dioxide commonly is not regarded as a toxic gas and only as a simple asphyxiant. Still, its affronts to physiological processes are so definite as to make the label of "toxicity" tenable. The maximum allowable concentration level is 0.5% or 5,000 ppm of air. For many years, 5 to 10% of carbon dioxide has been included in oxygen in connection with asphyxiation. Lately this has been condemned (*Brit. M. J.* 1:468 [Feb. 19] 1955). There, it is stated that carbon dioxide at the 15 or 20% level is poisonous. Hunter (Diseases of Occupations, London, English Universities Press, 1955) states: "A proportion [of carbon dioxide] about 1% in the air is considered as directly harmful, though 2%, which was common long ago in the fermenting vats in breweries, produced no symptoms in the workmen employed there. A proportion of 3% suffices to induce dyspnea with slight headache; if the proportion is from 5% to 6%, the dyspnea is pronounced and accompanied by head-

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

ache and sweating; a proportion of 10% breathed only for a minute sets up headache, visual disturbances, tinnitus, tremor and loss of consciousness. The victim of carbon dioxide poisoning rapidly becomes unable to stand and passes into coma." Notwithstanding the foregoing, it is observed that all exhaled air contains in excess of 4% carbon dioxide or more than 40,000 ppm of air. When the percentage of oxygen in air, which normally approximates 21% by volume, drops to 12%, danger is involved. While at all times the atmosphere breathed should be maintained close to the normal, it is not known that damage is prospective when the percentage of oxygen is in excess of 16. Apart from trace quantities of such other gases as methane, it is not known that untreated fresh vegetables emit gases other than carbon dioxide and the trace quantities mentioned are unimportant and nontoxic. Extensive data are recorded (Industrial Hygiene and Toxicology, vol. 2, Patty, F. A., editor, New York, Interscience Publishers, Inc., 1949; and Flury, F., and Zernik, F.: Schädliche Gase, Berlin, Germany, Springer-Verlag, 1931).

TOXIC DIFFUSE GOITER

To the Editor:—*A 55-year-old woman on April 29, 1955, gave a one year history of palpitations, loss of weight, intolerance to heat, insomnia, and general hyperactivity. Her temperature was 99 F (37.5 C), pulse rate 124 per minute (irregular), and blood pressure 130/60 mm. Hg. The thyroid gland showed some enlargement especially of the right lobe but also involving the left lobe. The skin was warm and moist, there was a fine tremor of the hands, and there was auricular fibrillation with a heart rate of 124 per minute but with no evidence of congestive heart failure. The basal metabolic rate on May 2, 1955, was +60%, and the white blood cell count was 5,600 per cubic millimeter, with 46% polymorphonuclear neutrophil leukocytes and 50% lymphocytes. She was placed on Tapazole therapy (10 mg. every 8 hours), digitalized with Gitalin, and given vitamins. On June 15, examination of the heart revealed a regular sinus rhythm with occasional extrasystoles and a rate of 100 per minute. On June 29, 1955, the heart rate was 84 per minute and only showed some sinus arrhythmia. The blood pressure was 125/80 mm. Hg. These changes have persisted until the present. She is feeling better, is eating well, and is gaining weight. The fine tremor of the hands has disappeared, and the intolerance to heat has diminished. The basal metabolic rate on July 6, 1955, was +12. The thyroid gland has decreased in size somewhat. She is still taking 30 mg. of Tapazole daily and 0.5 mg. of Gitalin. The white blood cell and differential counts have become normal. Should treatment with Tapazole and Gitalin be continued indefinitely, and, if so, when and how should the Tapazole dosage be decreased in order to arrive at the minimum maintenance dose? Is radioactive iodine a better and more definite treatment for this particular patient? Would you consider surgery in a patient this age with the previous heart findings, and, if so, how would you prepare her for it with Lugol's solution?* *M.D., New York.*

Answer.—It is assumed this patient has toxic diffuse goiter (Grave's disease). The dosage of Tapazole seems to have been a little inadequate. McCullagh at the Cleveland Clinic continues its administration until the basal metabolic rate is slightly below zero, pulse rate is entirely normal, symptoms have completely disappeared, and strength and weight are normal. The antithyroid drug is continued with diminution in dosage for at least a year. If hypothyroidism is caused and a slight reduction in dosage leads to increase of symptoms, suggestive of impending recurrence, the dose is increased and desiccated thyroid given concurrently. A second course is used by some, but others are not enthusiastic about this. Radioactive iodine is a more definitive treatment. About 75% of patients obtain complete and lasting relief on a single dose. The remainder require one or more additional doses. Recurrences are rare. McCullagh has seen only six recurring cases in 1,400 patients. The only complication is hypothyroidism, which occurs in about 10% of the patients treated. Surgery is still a good treatment and may be offered to patients with auricular fibrillation without decompensation. Most surgeons prefer patients to be treated with 1 ml. of Lugol's solution given three times a day for three weeks prior to operation. Antithyroid drugs are usually withdrawn two weeks before operation.

USE OF HEPARIN FOLLOWING THROMBOSIS

To the Editor:—*Which is the most satisfactory type of heparin (depo-heparin or sodium heparin) for use during the first few days of phlebothrombosis or acute myocardial infarction until dicumarol effect begins? Please summarize the status of sodium heparin in regard to dosage, route of administration, and frequency of coagulation time determinations necessary for adequate control. Is the subcutaneous and intramuscular administration of sodium heparin recommended?* *M.D., West Virginia.*

Answer.—The most satisfactory preparation is aqueous sodium heparin. Repository heparin has given inconsistent results that make it hard to maintain thrombostasis in the desired range; however, it is more convenient. When it is used, it may be given subcutaneously in the anterior thigh in doses of 200 mg. for patients under 150 lb. (68 kg.) and 300 mg. for heavier patients. Clotting times are measured every 12 hours, and the dosage is adjusted correspondingly. The most reliable method is to give aqueous heparin intravenously. Aqueous heparin is supplied in 10 ml. vials containing 50 mg. of heparin and in concentrated preparations containing 50 to 100 mg. per milliliter. The latter are for intramuscular use and, so used, yield more predictable curves of clotting time than the depo-heparin preparations. For intravenous treatment, a Lee-White clotting time is done in duplicate; it is normally 5 to 12 minutes; the first dose is then given, 50 mg. for patients weighing less than 150 lb. and 75 mg. for heavier patients. Clotting time is measured at one hour, when it is usually 50 to 75 minutes. This checks hyposensitivity or hypersensitivity. It is measured again at three and four hours. If the clotting time is normal, the dose is increased. It is usually normal at four hours, or nearly so, in which case the set dosage is repeated every four hours. If clotting is delayed at four hours, the measurement is repeated at six hours or until it falls to normal and the second dose given whenever this recovery has occurred and at like intervals thereafter, with spot checks of clotting time once or twice daily thereafter before a dose. Sodium heparin for intramuscular use is given in an initial dose intramuscularly or subcutaneously of 50 or 100 mg. The clotting times are done every hour for four hours to determine a set schedule, which is usually 50 mg. every three or four hours, with clotting times measured twice daily at three hours after the last dose. For rapid onset of action by this technique, give 50 mg. intravenously and 50 mg. intramuscularly and follow as just described.

CANDIDA INFECTIONS

To the Editor:—*A patient has been bothered with subungual fungous infections for a long time. No acid-fast organisms have been demonstrated, but sputum has been high in Candida albicans and intestinal moniliasis is present. He has had a long vigorous course of iodides, and, while the external picture seems to have improved and the intestinal symptoms have abated some, the sputum is still abundant in Candida. He has now developed intermittent swollen joints with redness and tenderness—all mild, but recurrent with activity. Sedimentation rate is high; no cardiac picture; no rheumatic history. He responds to rest; temporarily. 1. Is the joint picture associated with moniliasis? 2. Could it be associated with iodide therapy? 3. What is being used, further, for pulmonary and intestinal moniliasis?* *M.D., New York.*

Answer.—A new antibiotic preparation, Mycostatin, has been reported to be remarkably effective in systemic monilial infections. It can be given intravenously. Iodides, while effective in blastomycosis and torulosis, have no effect on moniliasis whatsoever. The disease of the joints could be a toxic manifestation of general moniliasis but could also represent a drug reaction to iodides. In the latter case it should subside when the blood and urine are free of iodides. If iodides are still circulating in the blood, 3 to 4 gm. of sodium chloride should be given daily by mouth to accelerate elimination.

MYOCARDIAL INFARCTION AND WORKMEN'S COMPENSATION

To the Editor:—*In the Queries and Minor Notes section in* The Journal, *Oct. 15, 1955, page 737, the following question regarding workmen's compensation was submitted: "What is the consensus regarding the relationship of effort in myocardial infarction, with reference to the Workmen's Compensation Act?" The reply is a fair statement of conditions existing at present. However, the last sentence of the reply states that "since the tendency is to give the workingman every 'break' his case would probably be judged compensable no matter what is the physician's opinion as to the relationship of physical exertion and myocardial infarction." This statement is without any basis in fact. All referees' decisions in such cases are based on medical evidence, and, unless there is such medical evidence giving causal relationship, no arbitrary ruling would be made giving the claimant the so-called break. Where physicians of equal experience and repute disagree and the evidence submitted is in conflict, then quite properly causal relationship is found for the claimant. There must however always be medical evidence presented claiming causal relationship before a finding of such relationship is made.*

Angela R. Parisi
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FEEDING PROBLEM CHILD

To the Editor:—*I would like to comment on the consultant's answer to "Feeding Problem Child,"* The Journal, *Oct. 15, 1955, page 737. I agree that the "problem is more to treat the parents than the child." I agree that a complete change of tactics in the family may help in such situations, but the last sentence negates the whole spirit of the consultant's answer. Hospitalization of a child such as the one described cannot be too strongly condemned. True, the child might start eating, but at what cost? The essence of the problem stated lies in the parent-child relationship, and a traumatic separation (traumatic for both parent and child) may cure the symptom but is bound to aggravate the basic disease. Why not counsel with the parents and allow them to express their own ideas and feelings and to work with the doctor on how they got into this mess and what they can do to get out of it. This approach will "treat the parents" and possibly help them to avoid future pitfalls. The inquirer should be referred to Aldrich's "Feeding Our Old Fashioned Children" (New York, the Macmillan Company, 1941), Senn's book on feeding children (All About Feeding Children, New York, Doubleday & Company, 1944), and Spock's section on the preschool child (The Common Sense Book of Baby and Child Care, New York, Duell, Sloane, & Pearce, Inc., 1946).*

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ULTRASONIC THERAPY

To the Editor:—*In the Queries and Minor Notes Section in* The Journal, *Oct. 8, 1955, page 633, is an answer on the use of ultrasonic therapy for bronchial asthma. I should like to echo the sentiments of the consultant and relate my experience with one case. A 46-year-old man with a history of asthma and hay fever, well controlled by allergic management, developed a severe, acute attack of allergic rhinitis (hay fever) and bronchial asthma about two hours after receiving ultrasonic treatment to the chest. This attack lasted 36 hours. The exact mechanism of such a reaction I do not know, but it does show what may happen to a potential asthmatic patient from ultrasonic therapy to the lungs.*

TUBERCULOSIS OF KIDNEY

To the Editor:—*May we take exception to the comment in answer to the query on "Tuberculosis of Kidney" in* The Journal, *Sept. 10, page 153, that there is no special advantage in using the potassium salt (of aminosalicylic acid) except to desensitize and to restrict sodium intake? In our article* (Am. Rev. Tuberc. 71:*220, 1955), we pointed out that the chief advantage of the potassium salt of aminosalicylic acid was its tolerability and "patient-acceptance," including freedom from nausea. Of 38 patients deliberately solicited because of intolerance to other aminosalicylate compounds (namely, aminosalicylic acid and sodium aminosalicylate), only 3 were unable to take potassium aminosalicylate in 12 gm. daily doses for prolonged periods. An additional 21 patients who had received no previous aminosalicylic acid therapy were also able to tolerate the potassium aminosalicylate in full dosage. Our more recent data, which cover an 18-month period from the time potassium aminosalicylate was first used, give a total of 120 patients treated. Of these, 78 were intolerant to other forms of aminosalicylic acid and only 5 in this group could not take potassium aminosalicylate consistently in 12 gm. daily doses. The remaining 42 patients (no previous potassium aminosalicylate therapy) had no difficulty in taking the drug. A similar drug tolerance study was performed independently by Chernish and Peck (An Evaluation of Potassium Para-Aminosalicylate,* Antibiotic Med. 1:*377 [July] 1955). These authors, using potassium aminosalicylate in capsule form, reported an intolerance rate of only 6% in a group of 102 patients, again, intolerance to potassium aminosalicylate occurring in those patients who were intolerant to all other forms of aminosalicylic acid. The over-all tolerance rate of 95% for potassium aminosalicylate certainly is far superior to tolerance rates for other aminosalicylate preparations. As a result of such data, we feel that the very high degree of patient tolerance and acceptance is a distinct advantage of potassium aminosalicylate therapy. As another advantage of potassium aminosalicylate may we cite the study of plasma aminosalicylate concentrations following the administration of potassium aminosalicylic, sodium aminosalicylic, and aminosalicylic acid. The potassium salt produced higher plasma concentrations than did the other two compounds when all three drugs were tested in each of eight subjects. These results were duplicated by Chernish and Peck. With reference to the patient mentioned in the query, we feel that if his vomiting is secondary to aminosalicylate medication, this symptom might well be relieved by the substitution of potassium aminosalicylic for the aminosalicylic acid he is receiving. If however, the vomiting is secondary to renal disease, potassium aminosalicylate would not improve the situation.*

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EATING ACTIVE YEAST DAILY

To the Editor:—*I would like to offer the following observation after reading a query in* The Journal, *Oct. 8, 1955, page 633. A patient was afflicted with micrococcic (staphylococcic) infections of the thumb from 1929 to 1938. Then he quit smoking and ceased having thumb infections but had boils, sometimes as large as hen's eggs on other locations. A special eight-hour sugar tolerance test showed a higher curve than normal. A diet for diabetics prevented the boils but reduced body weight. It was necessary to use insulin, sulfonamides, or antibiotics to prevent or cure the boils on a normal diet. Since the thesis of Robert Houston Hamilton Jr. (Minneapolis, University of Minnesota, 1933) showed that active yeast lowered the blood sugar, the patient has eaten active dry yeast for the last five years daily along with a normal diet and has had neither boils nor vitamin B (thiamine) deficiency.*

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, SEPTEMBER-DECEMBER 1955

Abstracts have been made of important articles in the following journals in the Current Medical Literature Department of THE JOURNAL during the past four months. Any of the journals, except those starred, will be lent by the Library of the American Medical Association to individuals in Continental United States and Canada who subscribe to its scientific periodicals and to members of the American Medical Association and its student organization. No charge is made to members, but the fee for other borrowers is 15 cents in stamps for each periodical. Three journals may be borrowed at a time for a period not exceeding five days. Thus most of these journals are accessible to the general practitioner.

*A. M. A. American Journal of Diseases of Children. Chicago.
*A. M. A. Archives of Dermatology. Chicago.
*A. M. A. Archives of Industrial Health. Chicago.
*A. M. A. Archives of Internal Medicine. Chicago.
*A M. A. Archives of Neurology and Psychiatry. Chicago.
*A. M. A. Archives of Ophthalmology. Chicago.
*A. M. A. Archives of Otolaryngology. Chicago.
*A. M. A. Archives of Pathology. Chicago.
*A. M. A. Archives of Surgery. Chicago.
Acta chirurgica scandinavica. Stockholm.
Acta clinica belgica. Brussels.
Acta medica et biologica. Niigata, Japan.
Acta medica scandinavica. Stockholm.
Acta tuberculosea belgica. Brussels.
American Heart Journal. St. Louis.
American Journal of Clinical Pathology. Baltimore.
American Journal of Digestive Diseases. Fort Wayne.
American Journal of Gastroenterology. New York.
American Journal of the Medical Sciences. Philadelphia.
American Journal of Medicine. New York.
American Journal of Obstetrics and Gynecology. St. Louis.
American Journal of Ophthalmology. Chicago.
American Journal of Pathology. Ann Arbor, Mich.
American Journal of Physical Medicine. Baltimore.
American Journal of Psychiatry. New York.
American Journal of Public Health. Albany, New York.
American Journal of Roentgenol. and Radium Therapy. Springfield, Ill.
American Journal of Surgery. New York.
American Journal of Tropical Medicine and Hygiene. Baltimore.
American Practitioner and Digest of Treatment. Philadelphia.
American Review of Tuberculosis. New York.
American Surgeon. Baltimore.
Angiology. Baltimore.
Annales chirurgiae et gynaecologiae Fenniae. Helsinki.
Annals of Allergy. St. Paul.
Annals of Internal Medicine. Lancaster, Pa.
Annals of Otology, Rhinology and Laryngology. St. Louis.
Annals of the Rheumatic Diseases. London.
Annals of Surgery. Philadelphia.
Antibiotic medicine. New York.
Archiv für Gynäkologie. Munich.
Archiv für klinische Chirurgie. Berlin.
Archives of Disease in Childhood. London.
Archives des maladies de l'appareil digestif et des maladies de la nutrition. Paris.
Archives des maladies du coeur et des vaisseaux. Paris.
Archivio italiano di chirurgia. Bologna.
Archivio italiano di pediatria e puericoltura. Bologna.
Archivum chirurgicum neerlandicum. Arnhem.
Arizona Medicine. Phoenix, Arizona.
Ärztliche Wochenschrift. Berlin.
Australasian Annals of Medicine. Sydney.
Australian and New Zealand Journal of Surgery. Melbourne.
Australian Journal of Experimental Biology and Medical Science. Adelaide.
Beiträge zur klinischen Chirurgie. Munich.
Beiträge zur Klinik der Tuberkulose. Berlin.
Bibliotek for laeger. Copenhagen.
Blood. New York.
Boletín de la Associación médica de Puerto Rico. Santurce.
British Heart Journal. London.
British Journal of Industrial Medicine. London.
British Journal of Radiology. London.
British Journal of Surgery. Bristol.
British Journal of Urology. Edinburgh.
British Journal of Venereal Diseases. London.
British Medical Journal. London.
Bulletin of the Johns Hopkins Hospital. Baltimore.
Bulletin of the Los Angeles Neurological Society. Los Angeles.
Canadian Medical Association Journal. Montreal.
Cancer. Philadelphia.
Chinese Medical Journal. Peking.
Chirurg. Berlin.
Circulation. New York.
Circulation Research. New York.
Clinica pediatrica. Bologna.
Clinica terapeutica. Rome.
Connecticut State Medical Journal. New Haven, Conn.
Cuore e circolazione. Rome.
Danish Medical Bulletin. Copenhagen.
Deutsche medizinische Wochenschrift. Stuttgart.
Deutsche Zeitschrift für Nervenheilkunde. Berlin.
Diabetes. New York.
Die Medizinische. Stuttgart.
Diseases of Chest. Chicago.
Diseases of the Nervous System. New York.
Electroencephalography and Clinical Neurophysiology. Montreal.
Fertility and Sterility. New York.
Fortschritte auf dem Gebiete der Röntgenstrahlen vereinigt mit Röntgenpraxis. Stuttgart.
Gaceta médica de Mexico. Mexico. D. F.
Gastroenterology. Baltimore.
Gazzetta medica italiana. Milan.
Giornale di clinica medica. Bologna.
Giornale italiano di chirurgia. Naples.
Giornale di gerontologia. Florence.
Glasgow Medical Journal. Glasgow.
GP (Journal of American Academy of General Practice). Kansas City, Mo.
Harefuah. Jerusalem-Tel Aviv.
Helvetica paediatrica acta. Basel.
Hospital. Rio de Janeiro.
Indian Medical Gazette. Calcutta.
International Journal of Leprosy. New Orleans.
Journal of Allergy. St. Louis.
Journal of the American Dietetic Association. Chicago.
Journal of the American Geriatrics Society. Baltimore.
Journal of Bone and Joint Surgery. Boston and London.
Journal de chirurgie. Paris.
Journal of Chronic Diseases. St. Louis.
Journal of Clinical Endocrinology and Metabolism. Springfield, Ill.
Journal of Clinical Investigation. New York.
Journal of the Florida Medical Association. Jacksonville.
Journal of Immunology. Baltimore.
Journal of the Indiana State Medical Association. Indianapolis.
Journal of International College of Surgeons. Chicago.
Journal of Iowa State Medical Society. Des Moines.
Journal of the Kansas Medical Society. Topeka.
Journal of Laryngology and Otology. London.
Journal of the Louisiana State Medical Society. New Orleans.
Journal of the Maine Medical Association. Portland.
Journal of the Medical Association of the State of Alabama. Montgomery.
Journal of the Medical Association of Georgia. Atlanta.
Journal of the Medical Society of New Jersey. Trenton.
Journal of Mental Science. London.
Journal of the Michigan State Medical Society. St. Paul.
Journal of the National Cancer Institute. Washington, D. C.
Journal of Nervous and Mental Disease. Baltimore.
Journal of Neurosurgery. Springfield, Ill.
Journal of Obstetrics and Gynaecology of the British Empire. London.
Journal of Pediatrics. St. Louis.
Journal of the Royal Army Medical Corps. London.
Journal of the Tennessee State Medical Association. Nashville.
Journal of Thoracic Surgery. St. Louis.
Journal of Urology. Baltimore.
Klinicheskaya meditsina. Moscow.
Klinische Wochenschrift. Berlin.
Lancet. London.
Laryngoscope. St. Louis.
Laval médical. Quebec.
Lyon chirurgical. Paris.
Maandschrift voor kindergeneeskunde. Leyden.
Maryland State Medical Journal. Baltimore.
Medical Journal of Australia. Sydney.
Medicina clínica. Barcelona.
Medicine. Baltimore.
Memphis Medical Journal. Memphis.
Minerva cardioangiologica. Turin.
Minerva chirurgica. Turin.
Minerva gastroenterologica. Turin.
Minerva ginecologica. Turin.
Minerva medica. Turin.
Minerva nefrologica. Turin.
Minerva nipiologica. Turin.
Minerva pediatrica. Turin.

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* Cannot be lent.

Minnesota Medicine. St. Paul.
Missouri Medicine. St. Louis.
Monatsschrift für Kinderheilkunde. Berlin.
Münchener medizinische Wochenschrift. Munich.
Nebraska State Medical Journal. Lincoln.
Nederlandsch tijdschrift voor geneeskunde. Haarlem.
Neurology. Minneapolis.
New England Journal of Medicine. Boston.
New York State Journal of Medicine. New York.
Nordisk medicin. Stockholm.
North Carolina Medical Journal. Winston-Salem.
Northwest Medicine. Seattle.
Obstetrics and Gynecology. New York.
Ohio State Medical Journal. Columbus.
Pediatria Polska. Warsaw.
Pediatrics. *Springfield, Ill.*
Pediatriya. Moscow.
Pennsylvania Medical Journal. Harrisburg.
Plastic & Reconstructive Surgery. Baltimore.
Policlinico (sezione chirurgica). Rome.
Policlinico (sezione medica). Rome.
Policlinico (sezione pratica). Rome.
Postgraduate Medicine. Minneapolis.
Prensa médica argentina. Buenos Aires.
Presse médicale. Paris.
Proceedings of Staff Meetings of Mayo Clinic. Rochester, Minn.
Progresso medico. Naples.
Quarterly Journal of Medicine. Oxford.
Quarterly Journal of Studies on Alcohol. New Haven.
Radiology. Syracuse, N. Y.
Revista de la Asociación médica argentina. Buenos Aires.
Revista da Associação médica brasileira. São Paulo.
Revista brasileira de cirurgia. Rio de Janeiro.
Revista clínica española. Madrid.
Revista do Hospital das clínicas da Faculdade de medicina da Universidade de São Paulo. São Paulo.
Revista de investigación clínica. Mexico, D. F.
Revista médica de Chile. Santiago.
Revista paulista de medicina. São Paulo.
Revue du rhumatisme. Paris.
Revue de la tuberculose. Paris.
Riforma medica. Naples.
Rivista clinica pediatrica. Florence.
Rivista d'ostetricia e ginecologia pratica. Milan.
Rocky Mountain Medical Journal. Denver.
Schweizerische medizinische Wochenschrift. Basel.
Semaine des hôpitaux de Paris. Paris.
Semana médica. Buenos Aires.
South African Medical Journal. Cape Town.
Southern Medical Journal. Birmingham, Ala.
Strasbourg médical. Strasbourg.
Surgery. St. Louis.
Surgery, Gynecology and Obstetrics. Chicago.
Texas State Journal of Medicine. Austin.
Thorax. London.
Thoraxchirurgie. Stuttgart.
Tidsskift for den norske lægeforening. Oslo.
Tumori. Milan.
Ugeskrift for læger. Copenhagen.
Ulster Medical Journal. Belfast.
Union médicale du Canada. Montreal.
Vestnik khirurgii. Leningrad.
Virginia Medical Monthly. Richmond.
Western Journal of Surgery, Obstetrics and Gynecology. Portland, Ore.
Wiener klinische Wochenschrift. Vienna.
Wiener medizinische Wochenschrift. Vienna.
Wisconsin Medical Journal. Madison.
Zeitschrift für die gesamte innere Medizin und ihre Grenzgebiete. Leipzig.
Zeitschrift für Tuberkulose. Leipzig.
Zeitschrift für Urologie. Leipzig.
Zentralblatt für Gynäkologie. Leipzig.

SUBJECT INDEX

The letters used to explain in which department the matter indexed appears are as follows: "E," Editorial; "C," Correspondence; "ab," abstracts; the asterisk (*) indicates an original article in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word with the following exceptions: Foundations, Lectures, Moving Pictures, and Prizes, under "F," "L," "M," and "P" respectively. "Book Notices," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," and "S." Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

For the author index see page 46.

A

- ACTH: See Corticotropin
- APC VIRUS: See Adenoidal-Pharyngeal-Conjunctival Virus
- ABDOMEN
  - acute disease differentiated from extra-abdominal, Peru, 706
  - acute in partial intraligamentary extrauterine pregnancy, [Best] 1161—ab
  - acute, serum amylase test in, [Gilbert] *775
  - anterior wall, Paragonimus westermani infestation in, [Kay] *1731
  - distended in chyliform pleurisy, Turkey, 1147
  - pain in fatal liver cirrhosis, (diagnostic problem) [Kidd] *1739; (comment) [Boggs] *1741
  - pain (lower) in dysmenorrhea in adolescence, 829; (correction) 1557
  - surgery, laparotomy; premedication: chlorpromazine, [Oljelund] 632—ab
  - symptoms after cholecystectomy, [Sandweiss & Fulton] *998
  - symptoms in untreated obese diabetic woman, 233
  - tumor, massive pheochromocytoma, [Colcock] 1159—ab
  - wall; tantalum, steel wire or nylon mesh to repair, [Petrina] 1798—ab
- ABNORMALITIES
  - after rubella during gestation, [Clément] 1067—ab; [Brawner] 1245—ab
  - as cause of perinatal mortality, [Gold] *241
  - peromelus with no distal parts, Switzerland, 510
- ABORTION
  - carbon monoxide poisoning cause? 1172
  - criminal, vaginal burns from potassium permanganate, [St. Romain] 406—ab
  - in etiology of cerebral palsy, [Denhoff] 719—ab
  - law, suggest changes, England, 1475
  - threatening and, vaginal and urinary cytology in, [Gagliardi] 85—ab
- ABRASION, Therapeutic: See Planing
- ABSCESS
  - abdominal, Paragonimus westermani infestation in, [Kay] *1734
  - cold, heparin for, France, 1325
  - of epiglottis, diagnosis, [Ralm & others] *1289
  - of pituitary in diabetes, Houssay phenomenon, [Brenner] 1152—ab
  - paravertebral, evacuation plus curettage of vertebral bodies in spine tuberculosis, [Wilkinson] 1242—ab
  - typhoid infection in, 1314
- ACCIDENTS
  - Automobile: See Automobiles
  - catastrophic, Metropolitan Life Insurance Co. report, 200
  - in children after cortisone, France, 703
  - in children; preventing, especially with kerosene, [Carithers] *109
  - in schools, England, 701
  - in the home, N. Z., 1565
  - Industrial: See Industrial Accidents
  - "is there a doctor . . .?" [Gordon] *1402
  - national service for, appeal for, England, 1564
  - skin diving problem, [Burns] *5
- ACETAZOLAMIDE
  - treatment of cardiac edema in arteriosclerosis, Denmark, 503
  - treatment of glaucoma, Norway, 1399
  - water removal in liver cirrhosis with, [Rissel] 821—ab
- ACETRIZOATE, SODIUM
  - for thoracic aortography, [Pender & others] *1738
- ACETYL SULFISOXAZOLE
  - tests and standards, 1120
- N-ACETYL-*p*-AMINOPHENOL
  - treatment of rheumatism compared to salicylamide, [Batterman & Grossman] *1619
- 3-ACETYL-AMINO-2-4-6-TRIIODOBENZOATE, SODIUM
  - angiography using, France, 703
- ACETYLSALICYLIC ACID (Aspirin)
  - effect on peptic ulcer, [Muir] 714—ab
  - toxicity, therapy for, [Schreiner] 711—ab
  - treatment vs. cortisone in chronic rheumatism, England, 1047; [Cohen] 1238—ab
  - vs. salicylamide as analgesic and antirheumatic agent, [Batterman & Grossman] *1619
- ACHROMYCIN: See Tetracycline
- ACID: See under name of specific acid as Acetylsalicylic Acid
- ACIDOSIS
  - ketoacidosis, managing diabetes during, [Goodman] *831
- ACNE
  - rotary abrasion for scars, [Eller] 726—ab; (A.M.A. Committee report) [Rattner & Rein] *1299; 1303—E
  - severe, with chronic hepatitis, 1335
  - vulgaris, (A.M.A. Committee report) [Malkinson] *1117; (guest editorial by Dr. Rothman) 1121; (reply: specialist vs. general practitioner) [Mecklin] 1676—C
- ACROMEGALY
  - thyrotoxicosis with, [Heaney] 626—ab
  - in Troell-Junet syndrome, Switzerland, 623
- ACROSCLEROSIS
  - form of generalized scleroderma, x-ray study, [Leszler] 1250—ab
- ACTAVIS
  - treatment of asthma crisis, [Rosa] 72—ab
- AD HOC Committee on Internships, report, *255; 932
- ADAMS-Stokes Syndrome: See Heart, block
- ADDISON'S DISEASE
  - glucagon hyperglycemic response in, [Alivisatos & McCullagh] *1098; (correction) 1467
  - treatment, fludrocortisone, [de Gennes] 1418—ab; (plus hydrocortisone) [Kupperman & Epstein] *1447; [Hamwi & Goldberg] *1598
  - treatment in man 60, 1580
  - treatment, survival over 15 years, [Rowntree] *1527
- ADENOCARCINOMA
  - of endometrium, prognosis and therapy, [Webb] 522—ab
  - of kidney, [Briggs] 1331—ab
- ADENOIDAL-PHARYNGEAL-CONJUNCTIVAL VIRUS
  - (England) 1233; (Canada) 1788
  - vaccine studies, [Huebner & others] *986
- ADENOIDECTOMY
  - complications: epistaxis and hemorrhage, estrogens for, [Menger] *546; [Gertner] 1401—C
- ADENOMA
  - of parathyroid, [Lee] 1571—ab
  - sebaceum; sebaceous involvement doubtful, [Zeligman & Scalia] 708—C
- ADENOMYOMA
  - gastric adenomyosis vs. aberrant pancreas, [Cimmino] 731—ab
- ADENOSINETRIPHOSPHORIC ACID
  - treatment of progressive spinal muscular atrophy? 152
  - treatment plus ACTH and ascorbic acid in asthma crises, [Rosa] 72—ab
- ADIPOSITY: See Obesity
- ADOLESCENCE
  - dysmenorrhea with low abdominal pain in, 829; (correction) 1557
  - thyroid cancer in, after irradiation, [Clark] *1007
- ADRENALIN: See Epinephrine
- ADRENALS: See also Addison's Disease; Cushing's Syndrome
  - adrenogenital syndrome in children, cortisone to diagnose and treat, [Andersen] 1070—ab
  - cortex activity measured by eosinophils, [Hoffer] 1496—ab
  - cortex and diabetes, Switzerland, 1566
  - cortex dysfunction, menstrual disturbances as sign, Austria, 1473
  - cortex hyperfunction, cortisone test in, [Gilsanz] 715—ab
  - cortex preparations in adrenal hypofunction, [Rowntree] *1527
  - dysfunction cause face and trunk pigmentation in chronic lung disease? 737
  - insufficiency after hypophysectomy, (reply) [Mellinger] 738
  - steroids in infectious disease, [Spink] 1569—ab
  - surgery, adrenalectomy and oophorectomy for breast cancer, [Girdwood] 81—ab; [Galante] 716—ab
  - surgery, adrenalectomy (bilateral total) for degenerative vascular disease in diabetics, [Headstream] 726—ab
  - surgery, adrenalectomy for breast cancer, [Dao] 1690—ab; [Pearson & others] *1701
- ADRENALS—Continued
  - surgery, adrenalectomy for hypertension, [Yeager] 223—ab
  - surgery, adrenalectomy; metabolic response, [Graber] 1242—ab; [Mason] 1413—ab
  - surgery, adrenalectomy (subtotal) plus sympathectomy and splanchnicectomy for hypertension, [Cartier] 814—ab
  - surgery, fludrocortisone after, [Hamwi & Goldberg] *1598
  - tumors, pheochromocytoma (malignant) with metastases, [Davis] 971—ab
  - tumors, pheochromocytoma (masked), diagnosis, [Mandl] 81—ab
  - tumors, pheochromocytoma, phentolamine in diagnosis and management, [Helps] 970—ab
- ADRENOCORTICOTROPIC HORMONE: See Corticotropin
- ADVERTISING
  - A.M.A. Council on Foods and Nutrition, new program, *779
  - by drug house through the mail, England, 66
  - of physician's office in lobby ethical? 686
- ADVISORY
  - Board for Medical Specialties, approved boards, *441
- AEROPLAST: See Vibesate
- AEROSOLS
  - detergents, drowning not possible from, (reply) [Miller] 738
  - irritation from, in antibiotic mists, (reply) [Miller] 738
- AGAMMAGLOBULINEMIA: See Blood
- AGE
  - in coronary artery disease, [Peel] 710—ab; (England) 1046
- AGGLUTININS
  - isoagglutinins, A, B, O, and AB groups in thrombocytes, Israel, 704
- AGRANULOCYTOSIS
  - deaths in Netherlands from, [Salomonson] 821—ab
- AGRICULTURE
  - A.M.A. sponsors symposium on health hazards of chemicals in, 38
  - atomic energy and, symposium, 1779
- AIR
  - carbon disulfide in, request lower standard, [Kleinfeld & Tabershaw] *677
  - embolism from skin diving, [Burns] *5
  - filters for pollen asthma, 1579
  - myelography, cervical, [Murtagh] 822—ab
  - polluted, relation to lung cancer, England, 1323; (relation to smoking) [Stocks] 1679—ab
  - pollution, California Conference on, 1034
  - pollution, Clean Air Bill; general approval, England, 966
  - pollution, USPHS research grants, 796
- AIRPLANES: See Aviation
- ALBUMIN: See Blood proteins; Radio-Iodinated Serum Albumin
- ALBUMINURIA
  - nephritis without, [Czoniczer] 1486—ab
- ALCOHOL
  - consumption, (Sweden) 67; (Belgium, laws on) 139
  - in blood, determining, Belgium, 139
  - National Research Council grants-in-aid, 1470
- ALCOHOLISM: See also "Drunkenness" under Medicolegal Abstracts at end of letter M
  - acute, chlorpromazine in, [Schultz] 406—ab
  - acute, treatment, Sweden, 67
  - A.M.A. Committee report, 918
  - Chicago industry community conference, 955
  - chronic, presenile cerebellar ataxia in, [Skillicorn] 816—ab
  - cost and time of hospital treatment, England, 1674
  - delirium tremens, France, 1325
  - delirium tremens, reserpine for, [Avol & Vogel] *1516
  - morphine contraindicated in, [Naalsund] 727—ab
  - treatment, antabuse unfavorably affect peptic ulcer? 1174
- ALDOSTERONE (Electrocortine)
  - hyperaldosteronuria after surgery, [Llaurado] 225—ab
  - hyperaldosteronuria with sodium retention; edema from, Switzerland, 212
  - postoperative aldosteronism, N. Z., 705

ALEVAIRE
  no irritation from, (reply) [Miller] 738
ALIMENTARY TRACT: See Gastrointestinal Tract
ALKALI
  needless dosing of infants with, England, 804
  treatment of allergic shock, [Clark] 1795—ab
ALLERGY
  alkali for shock of, [Clark] 1795—ab
  autoerythrocyte sensitization, purpura with painful bruising, [Gardner] 712—ab
  eczema problem, [Bookman] *1275
  erythematous patches and hives, etiology; treatment, 1255
  favism, [Bolt] 402—ab
  hazard of diagnosis and therapy, [Barr] *1452
  heparin, [Massone] 1249—ab
  horse serum during pregnancy, cortisone deleterious? 634
  insulin (lente) reactions fewer, [Haunz] *1611
  International College of Allergists report, 622
  patent leather shoes, bullous lesions from, 736
  penicillin anaphylaxis, [Crúz Hernández] 1248—ab; (fatal) [Andersen] 1680—ab
  penicillin, desensitization problems, England, 1143
  penicillin, feasibility of skin test, [Berger & Eisen] *191; (replies) [Coleman] 1148—C; [Siegal] 1401—C
  penicillin, from occasional course? 1336
  penicillin, in workers producing it, [Maffei] 731—ab
  penicillin reactions prevented by chlorprophenpyridamine maleate, [Frankel] 1408—ab
  photoallergic eczema, Switzerland, 212
  pollen, ulcerative colitis from, [Rowe] 1240—ab
  quinine, thrombopenic purpura from, Turkey, 1147
  serologic test for allergens, Switzerland, 622
  serum-sickness and local reaction in tetanus prophylaxis, [Moynihan] 972—ab
  session at A.M.A. Chicago Meeting, 1379
  streptomycin, desensitization in nurses, [Jahrmärker] 1494—ab
  sulfathiazole a dangerous drug? 736
  sulfonamide and antibiotic reactions, [Lowell] 1070—ab
  to medications in asthma, [Franceschini] 1795—ab
  transfusion problem, Denmark, 504
ALSEROXYLON: See Rauwolfia serpentina
ALTITUDE
  high, plasma of inhabitants stimulates erythropoiesis, Peru, 1146
AMBLYOPIA
  from sulfonamides, [Taub] 1695—ab
  in pituitary apoplexy, surgery for, [Shenkin] *1622
AMBONESTYL: See 2-Diethyl-amino-ethyl-isonicotinamide
AMEBIASIS
  complicating rheumatoid arthritis, chloroquine for, [Rinehart] 728—ab
  hepatic, erythromycin for, [Nelson] 1570—ab
  incidence in healthy people, clinic patients and arthritics, [Rinehart] 711—ab
  rectosigmoiditis, Chile, 1395
  treatment of a water-borne outbreak, [Sappenfield *& others*] *1009
AMENORRHEA
  secondary, estrogen-progesterone for, [Lange] 1068—ab
AMERICAN: See also list of Societies and Other Organizations at end of letter S
  Board of Anesthesiology, growth, [Betcher & others] *766
  Boards, approved by Advisory Board for Medical Specialties, *441
  Boards of Orthopedic Surgery, Radiology, Surgery and Urology; residency review policy, 378—E; (Council article) *382
  College of Surgeons, residency review policy, (Council article) 378—E; *382
  Legion, A.M.A. liaison, Council report, 942
  Medical Society of Vienna, representative at Boston A.M.A. Meeting, 1646
  Medical Writers' Ass'n. Award to *A.M.A. Archives of Surgery*, 1028
  School Health Ass'n., (tuberculin testing of Minnesota school children) [Myers & others] *185; (president-elect, F. V. Hein) 1747
  Society of Anesthesiologists, historical development, [Betcher & others] *766
  way of life, [Hoover] *214
AMERICAN MEDICAL ASSOCIATION
  Ad Hoc Committee on Internships, reports, *255; 932
  American Medical Education Foundation: see Foundations
  Annual Reports, October 29, p. 878
  Archives of Surgery received Honor Award, 1028
  Board of Trustees, (statement on social security for physicians) 1302—E; (report on Commission on Medical Care Plans) 1369—E; 1370; (report) 1647

AMERICAN MEDICAL ASSOCIATION—Continued
  Boston Clinical Meeting, 379—E; (program) 857; (technical exposition) 948; (resolutions) 1022; (photos) 1542; (registration) 1640; (proceedings) 1549; 1642; 1748
  Chicago Annual Meeting, (applications for Scientific Exhibit) 683; (program plans) 1028; (allergy session plans) 1379; (scientific program plans) 1640
  citation to Torald Sollmann, 1663
  Commission on Economic Policy, resolution on continuing, 1751
  Commission *on* Medical Care Plans, Trustees report on, 1369—E; 1370
  Committee on Blood, report, 1758
  Committee reports, resolution on introducing, 879; 1647
  Committees on Pesticides and Toxicology receive National Safety Council's commendation for accidental poisoning study, 781—E
  Constitution, resolution on amending to allow changes in Medical Ethics, 1752
  Council on Foods and Nutrition, new program, *779
  Council on Medical Education and Hospitals, (annual report on approved internships, residencies and fellowships in U. S.) *251; 378—E; 379—E; (policy relating to residency approval) *382; (55th annual report on medical education in U. S. and Canada) *563; 607—E
  Council on Medical Physics, propose establishment, 1651
  Council on Pharmacy and Chemistry, (provision for notice of changes in operation) 1366; (50th anniversary) 1368—E
  Councils, Seal-Acceptance terminated; role of Law Department, 897
  Distinguished Service Award, nominations requested, 879
  Division of Therapy and Research, changes in, 1379
  dues, resolution on reimbursement for collecting, 879; 1647
  General Practitioner Award to E. R. Samuel, (portrait) 1459—E; 1642; 1644
  grants-in-aid for research, list, 901
  House of Delegates, (members relation to meetings of) 852—E; (meeting at Boston) 859; (list of) 861; (actions taken at Atlantic City) 878; (policy adopted by, Judicial *Council report) 926; (Trustees report to, on* medical care plans) 1369—E; 1370; (report of actions at Boston) 1549; 1642; 1748; (Speaker Askey's remarks) 1642; (Statement of Dr. Underwood; members retiring) *1770*
  Journal Index, copies available, 1747
  Judicial Council (authorized opinions on medical ethics) 686; (report) 1748
  legislation study conference, 1305
  liaison with American Legion, Council report, 942
  Medical Practices Committee, resolutions on creation of, 1761
  membership report, 878
  messages of condolence, 1768; 1770
  Officers, (list of) 857; (reports) 878; 1545; 1647
  policies on matters of environment of medicine, resolution on, 1767
  President's mid-year report, 1545
  President's Page, monthly message, (Sept.) 380; (Oct.) 853; (Nov.) 1304; (Dec.) 1744
  Principles of Medical Ethics: See Ethics, Medical
  procedure on legislation, urge membership participation, (*President Hess's Page*) 853
  Proceedings of Boston Meeting, 1549; 1642; 1748
  Program of Boston Clinical Session, 857
  publications, new, 954; 1218, [Public Relations] *1382
  publications, resolution *on* alphabetical listing of Alaska and Hawaii, 1763
  Quarterly Cumulative Index Medicus, Volume 53 available, 381; 611
  Reference Committees, (list of, membership) 860; (appointments) 1643
  Reports of Officers, October 29, p. 878; 1545; 1647
  representation on Voice of America, resolu*tions on, 1762*
  resolutions . . . , 1022; 1549; 1550; 1647ff; *1750ff*
  Scientific Exhibit, (applications for Chicago) 683; (Boston Clinical Meeting) 869
  Scientific Exhibit (special), esophagitis, [Schmidt & others] *follows 1256*
  Scientific Exhibit (special), infantile spastic hemiplegia, [Perlstein & others] follows 738
  Scientific Exhibit (special), surgical treatment of gastric and duodenal ulcers, [Dragstedt & others] follows 1700
  Scientific Program, Boston Clinical Meeting, 862
  Scientific Program, Chicago meeting places, 1610
  Secretary, report, 1647
  Section on Anesthesiology, (Chairman's address) [Sappenfield] *1435

AMERICAN MEDICAL ASSOCIATION—Continued
  Section on Dermatology and Syphilology, (Chairman's address) [Fox] *544
  Section on Diseases of the Chest, (Chairman's address [Banyai] *1272
  Section on History of Medicine, report on proposed establishment of, 1651
  Section *on Nervous and Mental Diseases*, (Chairman's address) [Braceland] *1187
  Section on Orthopedic Surgery, (Chairman's address) [Nicholson] *642
  Section on Pathology and Physiology, (Chair*man's address) [Levinson] *1718*
  Section on Preventive and Industrial Medicine and Public Health, resolution on changing name, 1023; 1760
  special committee to review Joint Commission on Accreditation of Hospitals, 118
  sponsors, Conference on Physicians and Schools (5th), 611
  sponsors, medicolegal symposiums, 610—E; (report) 1638; (photos) 1639
  sponsors rural health conference, 783
  sponsors symposium on health hazards of chemicals in home, agriculture, and industry, 38
  Student A. M. A. delegates at Boston, 1646; (report) 1768
  Study Committee on Highway Accidents, resolution on, 1762
  Technical Exposition, Boston Clinical Meeting, 948
  television, (health tips for audiences) 118; (aids on eye) 381; (cooperate on infant care program) 783
  Woman's Auxiliary: See Woman's Auxiliary
AMIDOPYRINE: See Aminopyrine
p-AMINOHIPPURIC ACID
  clearance: kidney function test, [Conti] 88 ab
AMINOPTERIN SODIUM
  N.N.R., 680
  treatment of psoriasis, [Rees] 725—ab
AMINOPYRINE
  treatment plus phenylbutazone in gout, [Koller] 821—ab
  treatment plus phenylbutazone in rheumatic fever, side-effects, [Falk] 149—ab
p-AMINOSALICYLIC ACID (PAS)
  iodized salt counteract goitrogenic action? 234
  potassium salt for kidney tuberculosis? 153; (reply) [Molthan & others] 1804
  treatment of tuberculosis, (urine changes) 1173; [Drolet] 1407—ab; (in children) [Bour] 1415—ab
  treatment plus isoniazid in pulmonary tuberculosis, [Véran] 516—ab; (England) 1474
  tubercle bacilli resistant to, [Beck] 711—ab
AMODIAQUINE
  to prevent malaria, alone or with primaquine, India,1399
AMPHETAMINE
  treatment of Sydenham's chorea, [Masland] 807—C
AMPLIFIERS
  image, for cardiovascular diagnosis, [Zimmerman] *1449
AMPUTATION
  gas gangrene after fracture, patient awarded damages, England, 507
  stump drainage, treatment, 94
AMYLASE
  test (rapid serum) evaluated, [Gilbert] *775
AMYLOIDOSIS
  in tuberculosis, [Wald] 1057—ab
  renal, after cortisone in tuberculosis, Switzerland, 967
ANALEPTIC DRUGS
  in resuscitation of the newborn, [Tovell & others] *1337
ANALGESICS
  for eclampsia, [Bryce-Smith] 227—ab
  National Research Council grants-in-aid, 1470
  salicylamide evaluation, [Batterman & Grossman] *1619
  technic to assess, England, 142
ANAPHYLAXIS: See Allergy
ANCYLOSTOMIASIS
  miners' stools examined for, Belgium, 139
  treatment, cardol, India, 1399
ANDROGENS
  excretion in prostate cancer, [Birke] 525—ab
  for premenstrual dysuria, affect ovulation? 154
  testosterone for bilateral Charcot joints, 153
  testosterone for breast cancer, [Buttafarri] 1687—ab
  testosterone for loss of potency after prosta*tectomy? 1699*
  treatment of breast cancer; complications from [Faria] 527—ab
  treatment of metastatic breast cancer, [Pear*son & others] *1701*
ANEMIA
  after gastrectomy, (Belgium) 62; [Wallensten] 815—ab
  aplastic, from cigarettes? 1802
  constitutional, and leukemia in 2 brothers, [Cowdell] 1058—ab

- ANEMIA—Continued
  - Cooley's: See Leptocytosis, hereditary
  - correction for sedimentation rate in, 1422
  - hemolytic, ACTH or cortisone for, M.R.C. report, England, 1016; [Witts] 1071—ab
  - hemolytic, favism, [Bolt] 402—ab
  - hemolytic, in infectious mononucleosis, [Kirkham] 1485—ab
  - hypochromic, intravenous iron for, in children, Turkey, 767
  - hypochromic, iron compounds compared, England, 1232
  - in premature infants, [Clément] 146—ab; [Gairdner] 407—ab
  - likely after partial gastrectomy? 1700
  - macrocytic, serum vitamin B_{12} in, Israel, 1674
  - Mediterranean, splenectomy for, [Clement] 1069—ab
  - megaloblastic, from phenytoin sodium, [Ryan] 730—ab
  - nutritional megaloblastic, penicillin G in, India, 1399
  - pathogenesis in tuberculosis, [Miescher] 1408—ab
  - sickle cell hemoglobin C disease in siblings, [Scott] 629—ab
  - treatment, cobalt, [Hill] 1678—ab
- ANEMIA, PERNICIOUS
  - complications: gastric cancer incidence, [Zamcheck] 76—ab
  - treatment, vitamin B_{12}, [Reisner] 1238—ab
  - treatment, vitamin B_{12} and intrinsic factor, [Blackburn] 1071—ab
  - typical anemia absent in, [Plotkin] 1678—ab
- ANESTHESIA
  - anesthetists should be clinicians, England, 142
  - apparatus, safer; British Standards Institution, 802
  - bradycardia during, coronary thrombosis or cerebrovascular accident risk from? 828
  - educational needs in anesthesiology, [Sappenfield] *1435
  - effect on infant mortality in cesarean sections, [Lund] *1586
  - 50 years of organized anesthesiology, [Betcher & others] *766
  - general, effects on brain, especially on dementia, England, 504
  - in respiration problems, 1144
  - intravenous, rubber prop for syringe, [Potter] 808—C
  - lidocaine hydrochloride in, N.N.R., 1635
  - local, for peroral endoscopy, [Adler] *111
  - local, in newborn, [Straith] 1496—ab
  - obstetric, 24-hour coverage, [Bonica & Mix] *551
  - plea for simplicity in, England, 142
  - premedication with chlorpromazine, [Oljelund] 632—ab
  - regional, for adult circumcision, [Light & others] *31
  - Viadril, new intravenous steroid, 1144
- ANEURYSM
  - aortic arch, shunt graft with resection for, [Adams] *1195
  - aortic, dissecting, [Omland] 1155—ab; (surgery for) [DeBakey] 1572—ab
  - aortic sinus with coarctation of aorta and endocarditis, [Steinberg] 1329—ab
  - arteriovenous pulmonary, in Osler's disease, [Dienemann] 718—ab
  - cardiac, surgery for, [Niedner] 1064—ab
  - of middle cerebral artery, [Frankel] 405—ab
  - popliteal, vessel grafts for, [Julian] 1797—ab
- ANGINA
  - ACTH in severe anginose infectious mononucleosis, [Mandel & others] 158:1021, July 23, 1955; (correction) 159:132, Sept. 10, 1955.
  - Vincent's, fatal from bismuth, [Sterne] 730—ab
- ANGINA PECTORIS
  - ballistocardiograph evaluated, [Smith] 811—ab
  - differentiated from hiatus hernia, [Schmid] 1793—ab
  - etiology: tobacco in, [Sigler] 1682—ab
  - surgical treatment, cardiopericardiomyopexy, 158:1459, Aug. 20, 1955; (correction) [Gorelik] 159:708, Oct. 15, 1955
  - treatment, I^{131}, [Jaffe & others] *434
  - treatment; Khellin, heparin, Peritrate, [Kory] 728—ab
  - treatment, Metamine, [Fuller & Kassel] *1708
- ANGIOGRAPHY: See Blood Vessels, roentgen study
- ANIMALS
  - health, effects on man, Switzerland, 1048
  - tetanus immunization for football players using livestock field, 828
- ANOMALIES: See Abnormalities; under names of specific organs as Heart
- ANOSMIA: See Smell
- ANOXIA: See Oxygen deficiency
- ANSOLYSEN: See Pentolinium Tartrate
- ANTABUSE: See Disulfiram
- ANTEPAR: See Piperazine Citrate
- ANTHRAX
  - 117 cases, [Gold] 1062—ab
- ANTIBIOTICS: See also under specific names
  - bacteria resistance, (England) 141; [Steen] 1240—ab; [Sweany] 1248—ab; (in cheese, Canada) 1788
  - dermatological preparations, N.N.R., 1634
  - effect on tuberculous lymph nodes, [Mutschler] 1569—ab
  - effect on pathogenicity and proliferative capacity of a staphylococcus, [Hinglais] 231—ab
  - feces sterilized by, 3 deaths after, England, 66
  - from versatile fungus, [Florey] 1249—ab
  - local, new, [Kilma] 821—ab
  - mists, wetting agents in; irritation from, (reply) [Miller] 738
  - modern antibacterial agents, 1458—E
  - new plant opened, England, 1674
  - specificity in ear, nose, and throat infections, [Goldstein] 1417—ab
  - Staphylococcus resistant to, (reply to Dr. Finland) [Ross] 70—C; (relation to bacteriophage types) [Barber] 1418—ab
  - topical, effect on axillary odor, [Shelley & Cahn] *1736
  - toxicity: allergy, [Lowell] 1070—ab
  - toxicity: micrococcic enterocolitis, [Rentchnick] 74—ab; [Thaysen] 1239—ab
  - treatment of acne with chronic hepatitis, 1335
  - treatment of bac[illegible] England, 141
  - treatment of O[illegible] fails except with [illegible], [illegible] 220—ab
  - treatment of pneumonia in the newborn, [Schaffer & others] *663
  - treatment of purulent meningitis, [Etteldorf] *746
  - treatment of tuberculosis in children, [Bour] 1415—ab
  - treatment plus hydrocortisone in respiratory infections, [Persky] 1417—ab
  - treatment, yeast dermatoses with avitaminosis during, [de Graciansky] 408—ab
  - tubercle bacilli change from resistant to sensitive, [Allen & Roberg] *1533
- ANTIBODIES
  - poliomyelitis, Belgium, 62
  - poliomyelitis, in gamma globulin, [Opton] 1414—ab
  - secondary response variations to antigens, [Siegel] 146—ab
- ANTICHOLINERGIC DRUGS
  - treatment of pyloric channel ulcer, [Ruffin & others] *668
- ANTICHOLINESTERASE
  - intoxication, atropine for [Gordon & Frye] *1181
- ANTICOAGULANTS
  - hemorrhage from, vitamin K for, [Wood & others] *635; (reply) [Howell] 1401—C
  - new, warfarin sodium, [Pollock] *1094
  - thromboembolism prevented by, [von Brandis] 79—ab; [Scharpff] 625—ab
  - treatment in pregnancy; fetal damage from, England, 1047
  - treatment of coronary thrombosis with myocardial infarction, [Wood & others] *635
  - treatment of myocardial infarction, [Heichmann] 220—ab; (indefinately?) 735; (effect on prognosis) [Suzman] 1154—ab
- ANTIHISTAMINES
  - treatment plus ACTH or cortisone in purpura simplex with Schönlein-Henoch syndrome, [Wald & Kissin] *29
- ANTISPASMODICS
  - treatment plus vitamin E in infantile enuresis, [Gianolla] 1246—ab
- ANURIA: See Urine suppression
- ANUS
  - aporectal lesions (benign), complications after surgery for, [Anderson & others] *9
- ANXIETY
  - during Rauwolfia therapy, [Muller & others] *836
- AORTA
  - Aneurysm of: See Aneurysm
  - coarctation with endocarditis and aneurysm of aortic sinus, [Steinberg] 1329—ab
  - coarctation with patent ductus arteriosus, [Seaman] 1693—ab
  - descending, experimental shunt surgery, [Caluzzi] 1158—ab
  - gunshot wound stop a man at once? (reply) [Smith] 1500
  - overriding, in Eisenmenger complex, [Brown] 710—ab
  - roentgen study, thoracic, [Pender & others] *1738
  - transposed with pulmonary artery, surgery for, [Murphy] 1689—ab
- AORTIC ARCH Aneurysm: See Aneurysm
- AORTIC SINUS Aneurysm: See Aneurysm
- AORTIC VALVE
  - stenosis, [Matthews] 1328—ab
  - stenosis, carotid artery pulsations in, [Smith] 811—ab
- APOPLEXY: See Brain hemorrhage
- APPARATUS
  - anesthestic, safer; British Standards Institution, 802
  - for kymographic uterotubal insufflation, [Rubin] *1190
  - registry for sickroom loan equipment, Del. 955
- APPARATUS—Continued
  - Scuba, for skin diving, [Burns] *5
  - ultrasonic, F.C.C. type approval, (Council article) *114
- APPENDECTOMY
  - after myocardial infarction, death 9 days later; relation between? 1802
  - at gynecologic operations, Sweden, 1326
- APPENDICITIS
  - chronic, [Gallagher] 520—ab
  - Paragonimus westermani infestation simulating, [Kay] *1734
- APRESOLINE: See Hydralazine
- ARALEN: See Chloroquine
- ARAMINE: See Metaraminol Bitartrate
- ARGENTAFFINOMA: See Carcinoid
- ARGININE
  - foods rich in; is it synthesized in body? 1336
- ARMED FORCES
  - dependents, civilian doctor in care of, [Ravdin] *1109
  - health in, England, 505
  - infectious hepatitis treatment in, [Chalmers & others] *1431
  - need cars kill more soldiers than guns? [Wenger] *1347
  - Swiss Medical Corps reorganized, 1477
  - tuberculosis in, (England) 1397; (Switzerland) 1477
- ARMS
  - cervicobrachial pain and posture, [Johnson] *1507
  - gangrene after accidental intra-arterial injection of Somnifene, [Arruda] 1248—ab
  - injuries, chlorpromazine for causalgia after, [Dabbs & Peirce] *1626
- ARMY, UNITED STATES: See also Medicolegal Abstracts at end of letter M
  - American-Korean Foundation and, program: books for Korea, [Rusk] 158:970, July 16, 1955; (correction) [Christenberry] 159:70, Sept. 3, 1955,
  - caduceus, Medical Corps insignia, [Frankel] 398—C
- ARRHYTHMIA: See also Atrial Fibrillation
  - control in myocardial infarction, [Wood & others] *635
  - treatment, Ambonestyl, [Lanzoni] 631—ab
  - ventricular, from digitalis glycosides, [Page] 973—ab
- ART: See Physicians, avocations
- ARTERENOL (Nor-Epinephrine)
  - treatment of vascular headache, [Ostfeld] 970—ab
- ARTERIES
  - Aneurysm: See Aneurysm
  - carotid exploration for hemiplegia after mitral surgery, [Boyd] *112
  - carotid ligation in head and neck surgery, [Moore] 720—ab
  - carotid pulsation recorded in aortic stenosis, [Smith] 811—ab
  - celiac ligation during gastric resection; hepatic necrosis after, [Clarke] 718—ab
  - coronary dilatation with drugs, [Russek] 820—ab
  - coronary dilatation with 2-phenylchromone, [Ferrari] 408—ab
  - coronary disease, age and sex in, [Peel] 710—ab; (England) 1046
  - coronary disease, Beck operation for, [Selman] 402—ab; (color plates) [Beck & Leighninger] *1264; [Leighninger] 1686—ab
  - coronary disease, coronary sinus arterialization in, [Bakst] 518—ab
  - coronary disease, hemoirradiation of value in? 410
  - coronary disease, low estrogens predispose to? 738
  - coronary disease, mammary artery implanted into myocardium for, [Bakst] 813—ab
  - coronary disease, operative risk in, [Etsten & Proger] *845
  - coronary disease, postinfarction chest wall syndrome simulating, [Prinzmetal & Massumi] *177
  - coronary disease prevention, England, 703
  - coronary disease, tobacco in etiology, [Sigler] 1682—ab
  - coronary insufficiency, blood flow in, [Jamison] 1166—ab
  - coronary insufficiency from drugs for hypertension? 736
  - coronary insufficiency, surgery for, [Briggs] 1487—ab
  - coronary localization of thromboangiitis obliterans, [Capra Marzani] 1237—ab
  - coronary occlusion with myocardial infarction, 1579
  - disease, Tromexan for, [Castro] 1681—ab
  - grafts, bank at Hektoen Institute, 1664
  - grafts for occlusion of both innominate veins, [Reveno & others] *1192
  - grafts, homoplastic, [Provenzale] 78—ab
  - grafts, "orlon" cloth, [Kinmonth] 77—ab
  - grafts, plastics in, [Poth] 1573—ab
  - homografts, end-to-end vs. end-to-side anastomoses, [Linton] 1573—ab

- ARTERIES—Continued
  - insufficiency. dioxyline phosphate for, Chile, 1395
  - mammary (internal) implanted into myocardium for coronary disease, [Bakst] 813—ab
  - occlusion, intermittent claudication and sympathectomy for, [Mavor] 1687—ab
  - occlusion, sympathectomy for, [Pratt] 1064—ab
  - peripheral disease, serpasil and Doriden for pain of, [Nocetl] 728—ab
  - popliteal palpation in arteriosclerosis, 1700
  - pulmonary, transposed with aorta; surgery for, [Murphy] 1689—ab
  - retinal occlusion, etiology and therapy, [Anderson] 229—ab
  - roentgen study, vertebral arteriography of brain, [Plaut] 976—ab
  - transfusion by, Switzerland, 1050
- ARTERIOSCLEROSIS
  - aortic, severity in certain diseases, [Creed] 1495—ab
  - cerebral, mechanism and therapy, [Bruetsch] 231—ab
  - cerebrospinal, BAL for, [Romualdi] 83—ab
  - complications: cardiac edema; acetazolamide for, Denmark, 503
  - coronary, cholesterol in, England, 1046
  - coronary (Diagnostic Problems) [Plimpton & Gambino] *671; (comment) *673
  - coronary, diet to prolong life in, [Morrison] *1425
  - in leg, popliteal palpation in, 1700
  - means to lower blood cholesterol in? 234
  - occlusive, of legs, by-pass operation for, [Crawford] 1691—ab
  - phenylethylacetic acid antiatherogenous? [Cottet] 514—ab
- ARTHRITIS
  - home therapy in Wisconsin, 130
  - old garments to protect joints, [Rowntree] 214—C
  - treatment, cortisone; pleural empyema complicating, 410
  - treatment, hydrocortisone, Switzerland, 968
- ARTHRITIS, RHEUMATOID
  - complications: amebiasis, [Rinehart] 711—ab
  - complications: gout at same time? 1256A
  - complications: lung lesions, [Rubin] 1680—ab
  - essential hypertension inhibits [Zondek] 1683—ab
  - glucose-insulin tolerance in, [Houli & Povoa] *561
  - in males of Welsh mining community, [Miall] 230—ab
  - rehabilitation for chronic type, [Lohman] 73—ab
  - treatment, chloroquine, [Rinehart] 728—ab
  - treatment, cortisone, peripheral vasculature after, [Woodmansey] 1494—ab
  - treatment, cortisone vs. aspirin, England, 1047; [Cohen] 1238—ab
  - treatment, desoxycorticosterone and salicylates, [Schiavetti] 1494—ab
  - treatment, hydrocortisone, [Makin] 729—ab; [Weismann-Netter] 1153—ab; [Cecchi] 1418—ab; [Boland] 1485—ab
  - treatment, prednisone and prednisolone, [Spies & others] *645; (Switzerland) 1049
  - treatment, prognosis [Duthie] 221—ab
  - treatment, reserpine, [Bartfeld] *1510
  - treatment, salicylamide, [Batterman & Grossman] *1619
- ARTHRODESIS
  - for spondylolisthesis, [Bosworth] 815—ab
- ARTHROGRYPOSIS
  - multiplex congenita, [Kite] 1685—ab
- ASBESTOSIS: See Pneumonoconiosis
- ASCARIASIS
  - in children, piperazine for, [Hanna] 976—ab; [Brown] 1575—ab
  - treatment, cardol, India, 1399
- ASCHOFF BODIES
  - in auricular appendages in rheumatic fever, [Tedeschi] 1576—ab; (not correlate with C-reactive protein) [Elster] 1684—ab
- ASCITES
  - improve after sodium restriction in liver cirrhosis, [Davidson] *1257
- ASCORBIC ACID
  - treatment plus ACTH and adenosinetriphosphoric acid in asthma crises, [Rosa] 72—ab
- ASPHYXIA
  - in newborn as cause of death, [Gold] *244
  - in newborn, resuscitation, [Tovell & others] *1337; (laryngologist in) [Hollinger] *1338; [Day] *1340; [Potter] *1341
  - of childhood convulsions from rapidly rising temperature ever fatal? 1335
- ASPIRIN: See Acetylsalicylic Acid
- ASSAULT and BATTERY: See Medicolegal Abstracts at end of letter M
- ASSOCIATION: See American Medical Association; Societies, Medical; list of Societies at end of letter S
- ASTHMA
  - from pollen, air filters for, 1579
  - in bakers, [Pestalozzi] 229—ab
  - *ical treatment, status, 682—ab*
  - reatment, ACTH, [Kogan] 1568—ab
- ASTHMA—Continued
  - treatment, ACTH and cortisone; respiratory function with, [Fyles] 399—ab
  - treatment, allergy to medications, [Franceschini] 1795—ab
  - treatment, corticotherapy, [Vallery-Radot] 711—ab ; (severe and intractable type) [Davies] 813—ab
  - treatment of crises, ACTH, ascorbic acid, and adenosine triphosphoric acid, [Rosa] 72—ab
  - treatment, prednisone, (Switzerland) 1049; [Serafini] 1167—ab; [Sheldon] 1417—ab
  - treatment problems, Italy, 211
  - treatment, trypsin aerosol, [Biron] 515—ab
  - treatment, ultrasonics? 633; (reply) [Eisenberg] 1804
- ATABRINE: See Quinacrine
- ATAXIA
  - Locomotor: See Tabes Dorsalis
  - presenile cerebellar, in chronic alcoholics, [Skillicorn] 816—ab
- ATELECTASIS: See Lungs, collapse
- ATHEROSCLEROSIS: See Arteriosclerosis
- ATHLETICS
  - health aspects, physicians and schools discuss, 1125—E; 1126
  - injuries, Norway, 1475
  - physicians as sportsmen; request information, [Ryan] 1052—C
  - tetanus immunization for football players using livestock field, 828
  - vitamins and iron for athletes? 735
- *ATOMIC ENERGY*
  - agriculture and, symposium, 1779
  - bone x-rays of children exposed in utero to atomic bomb, [Sutow] 1072—ab
  - Central Society of Nuclear Medicine formed, 1667
  - Commission health and safety advisors, 1668
  - hazards of atom and hydrogen bombs, Belgium, 964
  - leukemia in bomb survivors, [Moloney] 813—ab
  - Marshall Islands tests, fall-out radiation effects on people after, [Cronkite & others] *430
  - Oak Ridge participation program, 1223
  - peaceful use, international conference discusses, 706
  - toxic effects on man, international conference discusses, 706
- ATRIAL FIBRILLATION
  - after prolonged thyroid therapy, [Hellman] *25
  - in heart cancer, [Joselevich] 970—ab
- ATROPHY
  - muscular (progressive spinal), adenosinetriphosphate for? 152
  - optic (hereditary), *interrupt pregnancy for?* 1172
- ATROPINE
  - treatment (large doses) in anticholinesterase intoxication, [Gordon & Frye] *1181
- AUREOMYCIN: See Chlortetracycline
- AUSCULTATION
  - cardiac, venous hum in, [Groom & others] *639
- AUTOMOBILES: See also "Motor Vehicles" under Medicolegal Abstracts at end of letter M
  - accidents, prevent head injuries in, [Sheldon] *981
  - danger of exhaust fumes, England, 1325
  - need cars kill more soldiers than guns? [Wenger] *1347
  - resolution on A.M.A. Study Committee on Highway Accidents, 1762
  - Safe Driving Day, Dec. 1., 1314
  - safety standards, A.M.A. resolution on national regulation, 1763
  - traffic safety encouraged, [Public Relations] *487
- AUTOPSIES
  - can coroner and hospital insist on? 1500
  - *in Comet aircraft disaster, England, 62*
  - index as comparative standard in medicolegal office evaluation, [Moritz; Spelman] 1327—C
  - rates in internship hospitals, *255; *256
- AVIATION
  - barosinusitis during flight descent, 1700
  - Comet aircraft disaster autopsies, England, 62
  - helicopter for emergencies, England, 1396
- AXILLA
  - odor, topical antibiotics effects on, [Shelley & Cahn] *1736
- AYURVEDA
  - system of medicine, public opinion favors, India, 1398

B

- BAL: See *Dimercaprol*
- BACIMYCIN: See Bacitracin-Neomycin
- BACITRACIN-NEOMYCIN
  - in surgery, [Holzhausen] 1798—ab
  - local antibiotic, new, [Klima] 821—ab
- BACKACHE
  - loose facets of lumbar vertebrae causing, [King] 1690—ab
  - low: hyperextension syndrome, [Macnab] 1239—ab
  - low, in industry, [Wilson] 1332—ab
- BACKACHE—Continued
  - lumbar traction for, eliminate factors preventing stretch, [Judovich] *549; (reply) [Varco] 1676—C
- BACTEREMIA
  - shock with, [Hall] 1062—ab
- BACTERIA
  - antibiotic resistant, (England) 141; [Steen] 1240—ab; [Sweany] 1248—ab; (in cheese, Canada) 1788
  - complicating measles, chemotherapy fails to prevent, [Weinstein] 1683—ab
  - in pyosalpingitis, [Ferraris] 722—ab
  - infections, modern antibacterials, 1458—E
  - Society for Applied Bacteriology, 1st international symposium, England, 803
  - yeast antagonism, [Bizot] 1493—ab
- BACTERIOPHAGE
  - *types, antibiotic sensitivity relation, [Barber] 1418—ab*
- BAKERS AND BAKERIES
  - asthma and rhinitis in bakers, [Pestalozzi] 229—ab
  - *food poisoning from bakery products, England,* 209; 802; 803
- BALLISTOCARDIOGRAM: See Heart
- BALLOON
  - tamponade diagnosis in esophageal varices, 484—E; (reply) [Bixby] 1480—C
- BALOCH, GHULAM MUHAMMAD KHAN, West Pakistan, death of, 1388
- BAMBERGER-MARIE DISEASE: See Osteoarthropathy
- BARBITURATES
  - Somnifene, gangrene after accidental intra-arterial injection, [Arruda] 1248—ab
  - toxicity, death from, in mental patient, England, 803
- BARKER, CREIGHTON, A.M.A. resolution on wish for speedy recovery, 1768
- BAROSINUSITIS: See Frontal Sinus
- BARTEMEIER, LEO H., address on Joint Commission on Mental Illness and Health, 1645
- BASIC SCIENCES
  - Hahnemann Medical College offers Master's degree and Ph.D. in, 1667
  - in approved surgical residency, 378—E; (Council article) *382
  - schools approved in Canada, *565; (list of) *568
  - schools approved in U. S., *565; (list of) *567
- BEANS
  - Fava: See Favism
  - lupine, reduced blood sugar in diabetes from? 153
- BECK OPERATION
  - for coronary disease, [Selman] 402—ab; [Beck & Leighninger] *1264; [Leighninger] 1686—ab
- BED
  - hospital beds in lumbar traction, [Judovich] *549
  - rest, ad lib., for infectious hepatitis, [Chalmers & others] *1431
- BENADON: See Pyridoxine
- BENOXINATE HYDROCHLORIDE
  - tests and standards, 1121
- BENZATHINE PENICILLIN G
  - to prevent rheumatic recurrences, [McCue] 1416—ab
- BENZEDRINE: See Amphetamine
- BENZETHONIUM CHLORIDE
  - treatment plus Vancide in seborrheic dermatitis, [Ball] 87—ab
- BENZPYRENE
  - harmful effects, England, 1325
  - lung cancer relation, England, 1323; (also relation to smoking) [Stocks] 1679—ab
- BENZTROPINE METHANESULFONATE
  - N. N. R., 776
- BETATRON
  - 4-years' use, Switzerland, 212
- BETHANECHOL CHLORIDE
  - treatment of parasympathetic atony of bladder, 1256A
- BICILLIN: See Benzathine Penicillin G
- BILE DUCTS
  - cholangiography (intravenous) after cholecystectomy, [Sandweiss & Fulton] *998; [McClenahan & others] *1353
  - drainage to decompress liver in jaundice, [Strauss & others] *739
  - obstruction (noncalculous), surgery for, [Preston] *17
- BILIARY TRACT
  - disease (noncalculous), surgery for, [Preston] *17
  - obstruction without jaundice, recognition, [Brem] *1624
  - operative cholangiography, [Gifford] 1489—ab
  - roentgen study, intravenous iodipamide, [Shehadi] *1350; (correction) 1669
- *BILIGRAFIN: See Iodipamide*
- BIRTH: See also Infants, Newborn; Labor
  - certificates, 1956 revision, [Dunn] *1184; 1215—E
  - Premature: See Infants, premature
  - *Rate: See Vital Statistics*
- BIRTH CONTROL: See Contraception

BISHYDROXYCOUMARIN
  treatment, adjust dose to prothrombin activity, [Lehman] 969—C
  treatment of myocardial infarction, [Heichmann] 220—ab
BISMITRIUM: See Hexamethonium
BISMUTH
  intoxication fatal, [Sterne] 730—ab
BITES: See also Snakebite
  human, [O'Brien] 1689—ab
BLADDER
  atony, parasympathetic, bethanechol chloride for, 1256A
  atony, subtotal cystectomy for, [Götzen] 1331—ab
  calculi, formed on unabsorbable suture, [Levack] 1492—ab
  calculi (phosphocalcic), alumina gels with low phosphorus and calcium diet for, [Génot] 525—ab
  cancer, latent, [Cooling] 1492—ab
  catheter (indwelling), preventing blocking from crystal deposits, (reply) [Cross] 1336
  tumors, papillomas, [Lund] 1247—ab
BLANKETS
  sterilization with cetyl trimethylamine bromide, [Blowers] 528—ab
BLASTOMYCOSIS
  systemic, [Knight] 1486—ab
  test to determine activity? 634
BLINDNESS
  Color: See Color Blindness
  etiology: glaucoma, [Havener & others] 213—C
  etiology: retrolental fibroplasia, [Truhlsen; Brændstrup] 1165—ab
  etiology: venereal disease, decrease in, 958
BLOOD
  acid phosphatase determinations, [Ozar] 726—ab
  agammaglobulinemia, [Rossi-Espagnet] 972—ab; [Brem; Heuchel] 1157—ab
  agammaglobulinemia, failure of plasma cell formation in, [Good] 725—ab
  [illegible] vital transplanta-
  [illegible]
  [illegible] gressive vaccinia,
  [illegible]
  alcohol determination, Belgium, 139
  A.M.A. Committee on, report, 1758
  amylase, rapid test, [Gilbert] *775
  changes in gastric cancer, Switzerland, 707
  cholesterol high, ACTH and cortisone hazard in, [Adlersberg & others] *1731
  cholesterol, means for lowering? 234
  cholesterol, will colchicine reduce? 1580
  circulation (gastric) after gastrectomy and at autopsy, Spain, 1400
  circulation (hepatic), Au^{103} to study, Austria, 392
  circulation restored by arterial grafts for occlusion of innominate veins, [Reveno & others] *1192
  clotted, serum obtained from, 634
  Coagulation, Anticoagulants: See Anticoagulants
  coagulation, hypercoagulability in heparin therapy, [Mathieu] 820—ab
  count after phenobarbital and Dilantin for epilepsy, (reply) [Peterman] 980
  dyscrasia hazard in radiologists, 1256A
  dyscrasia registry, A.M.A. report, 901
  Eosinophils Circulating in: See Eosinophils
  Fibrinogen: See Fibrinogen
  formation in infancy, [Gairdner] 407—ab
  Foundation name changed to "Joint Blood Council, Inc.," 1758
  groups, AB recipients; what other type usable? 234
  groups, A-B-O and AB groups in thrombocytes, Israel, 704
  groups, A-B-O incompatability causing erythroblastosis; chances of similar child? 234
  groups, erythroblastosis in infant of Rh negative parents; explanation? 1256
  groups in cancer, England, 394
  groups in peptic ulcers, England, 1232
  groups in twins, [Walsh] 629—ab
  groups, new red cell ("Diego") factor, Venezuela, 968
  groups, universal donor problems; plan for disasters, [Akeroyd & Crosby] *424
  groups, V, Rh antigen; common in Negroes, rare in white people, [DeNatale & others] *247
  in stools, effect of blood orally on, [Apt] 723—ab
  iodine (protein-bound and radioactive) after I^{131}, [Silver & others] *1
  iodine (protein-bound), basal metabolism correspond? 1499
  iodine (protein-bound) in diagnosis, [Murray] 1154—ab
  iodine (protein-bound) to evaluate thyroid function, [Skanse] 1681—ab
  iodine (radioactive) in hyperthyroidism, [Newburger] 823—ab
  irradiation for viral hepatitis, [Olney] 1063—ab
  irradiation, of value especially in coronary disease? 410
BLOOD—Continued
  lipids, hyperlipemia (essential), [Joske] 401—ab; (with diabetes and severe vascular damage) [Adlersberg] 1152—ab
  lipids, hyperlipemia in Sheehan's syndrome, [Zöllner] 819—ab
  lipoproteins in coronary sclerosis, England, 1046
  medium to cultivate Mycobacterium tuberculosis, [Tarshis] 1250—ab
  mucoproteins in rheumatic disease of infancy, [Fantuzzi] 86—ab
  nocturnal, for diagnosis of filariasis, India, 1399
  Plasma: See Plasma
  Platelets: See also Purpura, thrombopenic
  platelet level after massive whole blood transfusions, [Krevans & Jackson] *171; [Hyman] 1480—C
  platelet level after P^{32} in essential polyglobulism, [Tubiana] 529—ab
  platelets, A,B,O, and AB groups in, Israel, 704
  Proteins: See also Globulin; Radio-Iodinated Serum Albumin
  proteins after diphtheria anatoxin, ACTH effects on, [Bottone] 1574—ab
  proteins, albumin-globulin ratio in renal disease, 1579
  proteins before and after stomach cancer surgery, [Fretheim] 519—ab
  proteins in brain concussion, Austria, 1473
  prothrombin, dicumarol dosage adjusted to, [Lehman] 969—C
  prothrombin low during warfarin sodium therapy, [Pollock] *1094
  prothrombin-proconvertin activity, anticoagulants to test, [Iversen] 820—ab
  sedimentation rate, different methods; correction for anemia, 1422
  sedimentation rate, prednisone and prednisolone effect on, [Spies & others] *645
  sodium (total circulating) estimation, [Leevy & Donovan] *771
  sugar decrease in diabetes from lupine beans? 153
  su[illegible] to glucagon,
  [illegible] 98; (correc-
  [illegible])
  sugar, hypoglycemia from lente insulin, [Haunz] *1611
  sugar hypoglycemia in Houssay phenomenon, 1124—E
  sugar lowered by active yeast, 1804
  sugar parallels gastric depression from insulin, [Olson & Necheles] *1013
  transmissible agent in, [Beutler & Dern] *989
  vitamin B_{12} in macrocytic anemia, Israel, 1674
  volume before and after stomach cancer surgery, [Fretheim] 519—ab
BLOOD PRESSURE
  arterial, in leg; sphygmomanometer thigh cuff to measure, [Sapp & others] *1727
  auscultatory gap in measuring, 94
  basic, under varying conditions, how long to determine; when is it high? 92
  cold effect on, before and during antihypertensive drugs, [Windesheim] 149—ab
  in extremities of normal and hypertensive persons, [Riser] 151—ab
  intrasplenic, to evaluate porta-caval anastomosis, [Atkinson] 1411—ab
  low (controlled), chlorpromazine and procainamide for, [Matturro] 1567—ab
  low (induced), electrocardiogram in, 1144
  metaraminol effect on, [Weil] 148—ab
  Portal: See Portal Vein
  pregnancy (normal and toxemic) effect on, [Tillman] 1067—ab
  venous, and sodium retention in edema, [Goldman] 1419—ab
BLOOD PRESSURE, HIGH
  benign essential, for 18 to 34 years, [Burgess] 1567—ab
  cold effect on before and during drug treatment, [Windesheim] 149—ab
  complications: hemorrhagic retinitis, (drug therapy) [Burnett] 1156—ab; (splanchnicectomy for) [Huntington] 1159—ab
  complications: papilledema, rice diet for, [Newborg] 516—ab
  complications: pregnancy; fetal mortality, [Landesman] 1415—ab
  etiology: toxemia of pregnancy, [Schreier & others] *105
  inhibits malignant growth and arthritis, [Zondek] 1683—ab
  life expectancy after therapy, [Pfeffer] 401—ab; 1580
  malignant, [Plaza de los Reyes] 221—ab
  Portal Hypertension: See Portal Vein
  pressure in extremities in, [Riser] 151—ab
  pulmonary, in Eisenmenger complex, [Brown] 710—ab
  surgical treatment, adrenalectomy alone or with sympathectomy, [Yeager] 223—ab
  surgical treatment, dorsolumbar sympathectomy plus splanchnicectomy, or plus adrenalectomy, [Cartier] 814—ab
  surgical treatment, thoracolumbar sympathectomy, [Zintel] 81—ab; 626—ab
BLOOD PRESSURE, HIGH—Continued
  treatment, drugs; A.M.A. report, 901
  treatment, drugs; coronary insufficiency from? 736
  treatment, hexamethonium with hydralazine [Rast] 1156—ab
  treatment, methonium compounds, [Rønnov-Jessen] 73—ab
  treatment, pentolinium tartrate alone or with hydralazine, [Perry] 76—ab
  treatment, protoveratrine, [Tricot] 230—ab
  treatment, Rauwolfia, [Hilden] 74—ab; (England) 622; [Armas Cruz] 820—ab; [Vakil] 1156—ab; [Moyer] 1406—ab
  treatment, Rauwolfia combined, [Persson] 74—ab; (Peru) 509; [Moyer] 220—ab; [Stuppy] 625—ab; [Esselier] 1071—ab; [Dennis] 1406—ab; [Waldron] 1794—ab
  treatment, Rauwolfia complications, [Perera] *439; [Muller & others] *836; [Schroeder & Perry] *839; [Achor & others] *841; [Kass & Brown] *1513
  treatment, veratrum alone or with hexamethonium, [Brunner] 729—ab
  urologic, pressor gland in, [Jiménez-Díaz] 1165—ab
BLOOD TRANSFUSION
  arterial, Switzerland, 1050
  blood bank organized, Norway, 1675
  complications: brucellosis transmission, Brazil, 621
  complications: fever from transmissible agent in, [Beutler & Dern] *989
  complications: hemolysis from hr' (c) factor, [Yahn] 1411—ab
  donations to hospitals in England and Wales high in 1954, 804
  erythrocyte survival before and after surgery, [Cortese] 1061—ab
  hypothermia with, for massive hemorrhage, [Goffrini] 78—ab
  increased 70 times since the war, England, 1144
  massive whole, hemorrhage after [Krevans & Jackson] *171; [Hyman] 1480—C
  plan for more blood in disasters, [Akeroyd & Crosby] *424
  problems, Denmark, 504
  type recommend for group AB when AB not available? 234
BLOOD VESSELS
  damage with hyperlipemia and mild diabetes, [Adlersberg] 1152—ab
  disease (degenerative), retinal vascular reactivity and renal function in, [Sieker] 970—ab
  disease (degenerative) in diabetics, adrenalectomy for, [Headstream] 726—ab
  gastric, after gastrectomy and at autopsy, Spain, 1400
  graft for popliteal aneurysms, [Julian] 1797—ab
  graft (shunt) with resection for aortic arch aneurysm, [Adams] *1195
  grafts, [Linton] 1797—ab
  International Congress on Angiology, 2nd, 1050
  pattern in bone tumor diagnosis, [Begg] 1250—ab
  roentgen study, new technique, France, 703
  roentgen study, renal, [Riches] 88—ab
  roentgen study, safeguards, [Brugghen] 1243—ab; [Sedzimir] 1573—ab
  roentgen study, to diagnose congenital heart disease, [Boesen] 524—ab
"BLOOD-SUCKERS": See Insects, triatomid
"BLUE-BABIES": See Heart anomalies, tetralogy of Fallot
BODY
  dead, medico-legal aspects of homotransplantation, (Medicine and the Law) [Vestal & others] *487
  physique relation to school entrance examinations and intelligence, England, 140
  Weight: See also Obesity
  weight and marital status, England, 1474
  weight loss in pancreatic disease, [Berk] *1079
BONAMINE HYDROCHLORIDE: See Meclizine
  [illegible]
BONE MARROW
  [illegible]ns, [Ottolenghi] 82—ab
  depression from nitrogen mustard and TEM, [Mrazek & Wachowski] *160
  plasma cell formation failure in agammaglobulinemia, [Good] 725—ab
BONES
  lesion diagnosis by aspiration biopsy, [Ottolenghi] 82—ab
  metabolism, liver effect on, [Roberts & Sullivan] *1002
  metastases from breast and prostate cancer, hydrocortisone for, [Gilbert-Dreyfus] 1061—ab
  Tuberculosis: See Spine, tuberculosis
  tumors, cephalhematoma complicating E. coli meningitis in infant, [Gordon & Aronow] *1288
  tumors, vascular pattern in diagnosis, [Begg] 1250—ab
  x-ray study on children exposed in utero to atomic bomb, [Sutow] 1072—ab

- BOOKS: See also Book Reviews at end of letter B
  - for Korea, program of U. S. Army and American-Korean Foundation, [Rusk] 158:970 July 16, 1955; (correction) [Christenberry] 159:70, Sept. 3, 1955
- BOTULISM
  - outbreaks from ham, Norway, 1399
- BRADYCARDIA
  - during anesthesia, coronary thrombosis or cerebrovascular accident risk from? 828
- BRAIN
  - anesthesia (general) effect on, England, 504
  - cerebral damage after nitrous oxide, England, 505
  - cerebral injury in etiology of mental deficiency, [Pasamanick & Lilienfeld] *155
  - cerebral lesions, extracellular hyperosmolarity after, [Anthonisen] 83—ab
  - cerebrovascular accidents, Peru, 1477
  - cerebrovascular accidents, hibernation for, Cuba, 802
  - cerebrovascular accidents, risk after bradycardia during anesthesia? 828
  - concussion, serum protein in, Austria, 1473
  - cortical pathology in progressive dementia, neuropathologists discuss, 1230
  - drugs injected into, for psychosis, England, 1789
  - drugs that act on, Switzerland, 1146
  - electroencephalogram after antabuse, [Pedersen] 628—ab
  - electroencephalogram after pertussis immunizations, [Low] 723—ab
  - electroencephalogram after serpasil, [Colombati] 720—ab
  - electroencephalogram, scalp electrical stimulation to activate, [Gozzano] 1244—ab
  - electrography, leukotomy results based on, [Petersen & others] *774
  - encephalography, fractionated, [Melot] 226—ab
  - fetal, and narcosis, [Courville] 1246—ab
  - hemorrhage, apoplexy, (cortisone for) [Russek & others] *102; (causes of death in) [Lyager]; (immediate prognosis), [Skinhøj] 1243—ab; (Peruvian symposium) 1476; (surgery for amblyopia in) [Shenkin] *1622; (prognosis, Denmark) 1789
  - *d*-lysergic acid diethylamide action on, England, 699
  - stem (lower) involvement, possible amyotrophic lateral sclerosis? 1256
  - surgery for focal epilepsy, [Penfield] 1414—ab
  - surgery for vascular lesion, hypothermia in, [Lougheed] 406—ab
  - surgery, hemispherectomy (total), [Austin] 225—ab
  - surgery, leukotomy; intracerebral electrography in, [Petersen & others] *774
  - surgery, leukotomy (prefrontal); legal responsibility after, England, 508
  - surgery, leukotomy (transorbital) of Fiamberti, [Meneghel] 1066—ab
  - tentorial herniation possible cause of epilepsy, 1230
  - tumor location, isotope test rejected, England, 1565
  - tumors, hemangioma, Turkey, 623
  - tumors, hematomas in the young and middle-aged, [Miller] 975—ab
  - tumors in children, Cuba, 802
  - vertebral arteriography in fronto-occipital view, [Plaut] 976—ab
- BREAST
  - cancer, adrenalectomy and hypophysectomy for; metabolism after, [Mason] 1413—ab
  - cancer, adrenalectomy for, [Dao] 1690—ab
  - cancer, axillary node levels, [Berg] 715—ab
  - cancer, bilateral adrenalectomy and oophorectomy for, [Girdwood] 81—ab; [Galante] 716—ab
  - cancer, complications of hormone therapy, [Faria] 527—ab
  - cancer detection plan, Norway, 1476
  - cancer during pregnancy, [Firpo] 818—ab
  - cancer, hormones for, [Grinberg] 1495—ab
  - cancer, metastatic, management, [Pearson & others] *1701
  - cancer, parasternal curettage in, [Redon] 1241—ab
  - cancer, radiation and estrogens for, England, 394
  - cancer, spread of, [Price] *1345
  - cancer, steroids and hormones for, A.M.A. report, 901
  - cancer, testosterone for, [Buttafarri] 1687—ab
  - cancer treatment at U. of Edinburgh, [Ackerman] 1409—ab
  - cancer with skin, chest wall and muscle involvement; skin graft to close, [Dunavant] *1202
  - plastic prosthesis, [Pangman] 818—ab
  - Surgery: See also Breast cancer
  - surgery, mastectomy; lymphedema after, 233
  - surgery, mastectomy (radical), include internal mammary lymph nodes, [Urban] 627—ab
- BREAST—Continued
  - surgery, mastectomy (radical); innominate veins occlude after, [Reveno & others] *1192
  - surgery, mastectomy (radical), skin flaps fixed by subcutaneous sutures, [Larsen] *24
  - tumors, fibrosarcoma, [Lodi] 1798—ab
- BREATH; Breathing: See Respiration
- BRILL-SYMMERS DISEASE: See Lymphoma
- BRITISH
  - Congress of Obstetrics and Gynecology, 14th, 505
  - Greenland expedition to study aspects of arctic exploration, 1230
  - Health Service: See National Health Service
  - Medical Ass'n. (opinion on free drugs for private patients) 64; (motion against compulsory use of motorcycle crash helmets) 65; (urges monthly N. H. S. checks) 66; (Canadian M. A. joint meeting) 141
  - Standards Institution, safer anesthetic apparatus, 802
- BROMIDES
  - intoxication, chronic, [Norheim] 727—ab
- BRONCHIECTASIS
  - diagnosis, x-rays, [Denstad] 1697—ab
  - surgical treatment, resection; prognosis after, [Ginsberg] 80—ab
  - treatment, trypsin aerosol, [Biron] 515—ab
- BRONCHITIS
  - smoking effect on incidence, England, 1474; [Oswald] 1794—ab
  - *treatment, cortisone, Peru, 706*
- BRONCHOGRAPHY: See Bronchus, roentgen *study*
- BRONCHOPNEUMONIA
  - after measles in infants, Peru, 705
- BRONCHUS
  - cancer and asbestosis, Switzerland, 1050
  - cancer, asymptomatic, [McBurney] 971—ab
  - cancer, clinicopathologic study, [Armstrong] 1167—ab
  - cancer, contralateral pulmonary metastases, [Balmes] 1488—ab
  - *cancer diagnosis, (Italy) 1326; (early)* [Schmidt] 1687—ab
  - *cancer diagnosis in tuberculosis,* [Shafran] 812—ab
  - cancer differentiated from unspecific pneumonia, [Kesztele] 515—ab
  - cancer, fatal, [Armstrong] 1167—ab
  - cancer, joint disorders as early symptom, [Ricklin] 973—ab
  - cancer, natural duration, [Rignall] 812—ab
  - cancer, neuropathology, [Romano] 1799—ab
  - cancer, resection for; survival after, [Bignall] 1330—ab
  - cancer suspected, supraclavicular biopsy in, [Skinner] 77—ab
  - cancer, Synkayvite and radiation for, England, 394
  - cancer type and localization related to lung ventilation, [Löhr] 1483—ab
  - fractures in thorax injuries, [Blades] *419
  - infections, chloramphenicol for, [Storti] 730—ab
  - lavage in diagnosing lung cancer, [Spjut] 632—ab
  - lavage to recover tubercle bacilli, [Lees] 1682—ab
  - roentgen study, compared to excision specimens, [Simonin] 529—ab
  - stenosis (unspecific), x-ray diagnosis, [Denstad] 1697—ab
  - tracheobronchial secretion retention, dangers; management, [Ransdell] 1687—ab
- BRUCELLOSIS
  - pyelonephritis with, simulating tuberculosis, [Abernathy & others] *1534
  - transmitted by transfusions, Brazil, 621
  - treatment, antibrucellar vaccine for pain of locomotion, [Verdú] 1154—ab
  - treatment, chloramphenicol ester plus streptomycin, [Gambusi] 231—ab
  - treatment, cortisone plus tetracycline and vaccine, [Corelli] 230—ab
  - treatment, erythromycin, [Urteaga] 1493—ab
- BUCKWHEAT: See Fagopyrum
- BUERGER'S Disease: See Thromboangiitis obliterans
- BUFFALO
  - of India, milk free from tuberculosis? 536
- BURNS
  - pyemia in children after, Peru, 1145
  - silver nitrate to aid epithelization in man 70, 535
  - treatment, modern, [Artz & Soroff] *411
  - treatment on face, [Blocker] *422
  - treatment, postmortem skin homograft, [Artz] 1798—ab
- BURSITIS
  - treatment, x-rays, [Shoss] 1697—ab
- BUSINESS PRACTICE
  - fees, hourly-rate basis, [Porterfield & Marks] *215
  - medical unit, where to locate, *1481
- BUTAPYRIN: See Phenylbutazone
- BUTAZOLIDIN: See Phenylbutazone

BOOK REVIEWS

- **Aberle, W., and others,** Lehrbuch der praktischen Orthopädie, 90
- **Accidents**
  - Casualty Department, [Lowden] 1074
- **Ackerknecht, E. H.,** Short History of Medicine, 1073
- Adolescent Development, [Hurlock] 1075
- Adoption . . . and After, [Raymond] 1171
- **Adrenals**
  - Ciba Foundation Colloquia on Endocrinology. Volume VIII. Human Adrenal Cortex, [Wolstenholme & Cameron] 532
  - Surgical Physiology of the Adrenal Cortex, [Hardy] 826
- **Adriana, J.,** Selection of Anesthesia, 1075
- Airborne Contagion and Air Hygiene, [Wells] 90
- **Alcoholism**
  - How to Live Without Liquor, [Habas] 409
- **Aldrich, C. K.,** Psychiatry for the Family Physician, 1801
- **American Medical Association**
  - J.A.M.A. Clinical Abstracts of Diagnosis and Treatment, [Fabricant] 1578
- **American Public Health Association**
  - Control of Communicable Diseases in Man, 734
- **Anatomy**
  - Atlas of Roentgen Anatomy of the Skull, [Etter & others] 978
  - Leonardo da Vinci: Das anatomische Werk mit kritischem Katalog *und Abbildungen,* [Esche] 1251
  - Praktische Anatomie: Ein Lehr- und Hilfsbuch der anatomischen Grundlagen ärztlichen Handelns, [von Lanz & Wachsmuth] 1251
- **Anesthesia**
  - Anesthesia in Ophthalmology, [Atkinson] 1420
  - Selection of Anesthesia, [Adriana] 1075
- Angiographic Localization of Intracranial Masses, [Ecker] 1252
- **Animals**
  - Principles of Animal Virology, [Burnet] 91
- **Antibiotics**
  - Antimicrobial Therapy in Medical Practice, [Flippin & Eisenberg] 232
- **Anus**
  - Les maladies de l'anus et du canal anal, [Hillemand & others] 91
- Anxiety and Stress, [Basowitz & others] 1169
- **Arteriosclerosis**
  - Symposium on Atherosclerosis, [National Research Council] 733
- **Athletics**
  - Journées internationales de médecine sportive *militaire,* 1171
- **Atkinson, W. S.,** Anesthesia in Ophthalmology, 1420
- **Atlas**
  - Angiographic Localization of Intracranial Masses, [Ecker] 1252
  - Atlas de chirurgie thyroïdienne, [Francillon & Gabrielle] 533
  - Atlas of Roentgen Anatomy of the Skull, [Etter & others] 978
  - Atlas zur Spurenkunde der Elektrizitat, [Jellinek] 1578
  - Handatlas der Cystoskopie und Urethrocystoskopie, [Kneise & Stolze] 827
  - *Praktische Anatomie: Ein Lehr- und* Hilfsbuch der anatomischen Grundlagen ärztlichen Handelns, [von Lanz & Wachsmuth] 1251
  - Radiographic Atlas of Skeletal Development of the Knee, [Pyle & Hoerr] 825
  - Spine, [Epstein] 90
- **Atom Bomb**
  - Hiroshima Diary, [Hachiya] 1801
- Autoradiography in Biology and Medicine, [Boyd] 733
- **Aviation**
  - Collected Papers on Aviation Medicine, [N. A. T. O.] 1073
- **Baker, A. B.,** editor, Clinical Neurology, 977
- **Barlow, R. B.,** Introduction to Chemical Pharmacology, 1253
- **Basowitz, H., and others,** Anxiety and Stress, 1169
- Bedside Diagnosis, [Seward] 91
- **Begg, R. W.,** editor, Canadian Cancer Conference. 530
- **v. Bergmann, G., Frey, W., and Schwiegk, H.,** editors, Handbuch der inneren Medizin, 232
- **Bibliography**
  - Applied Medical Bibliography for Students [Postell] 1497
- **Biochemistry**
  - Clinical Biochemistry, [Cantarow & Trumper] 826
  - Neurochemistry, [Elliott & others] 1169
- **Biography**
  - Life and Work of Sigmund Freud, [Jones] 1252
- **Biology**
  - Autoradiography in Biology and Medicine, [Boyd] 733
  - Luminescence of Biological Systems, [Johnson] 1577

Bird, B., Talking with Patients, 826
Blood
  Hematology, [Sturgis] 91
  Modern Trends in Blood Diseases, [Wilkinson] 1073
Blood Vessels
  Angiographic Localization of Intracranial Masses, [Ecker] 1252
Body
  Science Book of the Human Body, [Sproul] 1253
Bones
  Bone and Joint X-Ray Diagnosis, [Ritvo] 533
  Transplantation of Tissues, [Peer] 734
Boyd, G. A., Autoradiography in Biology and Medicine, 733
Boyd, W., Pathology for the Surgeon, 824
Braceland, F. J., editor, Faith, Reason and Modern Psychiatry, 1253
Bracken, A., Chemistry of Micro-Organism, 531
Brain: See also Neurology
  Denial of Illness, [Weinstein & Kahn] 409
  Postnatal Development of the Human Cerebral Cortex, [Conel] 824
  Psychopathology and Education of the Brain-Injured Child, [Strauss & Kephart] 1698
Breast
  Breast Cancer and Its Diagnosis and Treatment, [Lewison] 733
  Veränderungen des Thoraxröntgenbildes bei Brustkrebspatienten, [Oeissner] 533
British Medical Journal
  Clinical Pathology in General Practice, 531
British *Postgraduate Medical Federation*, Lectures on Scientific Basis of Medicine, 1253
Bunim, J. J., editor, Research and Education in Rheumatic Diseases, 533
Burch, G. E., and Winsor, T., Primer of Electrocardiography, 89
Burnet, F. M., Principles of Animal Virology, 91
Byrd, O. E., compiler, Nutrition Sourcebook, 1074
  School Health Sourcebook, 1075
Canadian Cancer Conference, [Begg] 530
Cancer
  Advances in Cancer Research. Volume III., [Greenstein & Haddow] 1421
  Breast Cancer and Its Diagnosis and Treatment, [Lewison] 733
  Canadian Cancer Conference, [Begg] 530
  Cancer Cells, [Cowdry] 1577
  Veränderungen des Thoraxröntgenbildes bei Brustkrebspatienten, [Oeissner] 533
Cantarow, A., and Trumper, M., Clinical Biochemistry, 826
Cardiovascular System
  Clinical Pathologic Conferences of Cook County Hospital. Cardiovascular-Renal Problems, [Popper & Kushner] 1170
  Kreislaufregulation, [Reindell & others] 533
Caring for the Sick Child at Home, [Lowndes] 1801
Cartilage
  Transplantation of Tissues, [Peer] 734
Casualty Department, [Lowden] 1074
Cecil, R. L., Loeb, R. F., and others, editors, Textbook of Medicine, 91
Chandler, A. C., Introduction to Parasitology, 1252
Chemistry
  Chemistry of Micro-Organism, [Bracken] 531
  Elsevier's Encyclopædia of Organic Chemistry, [Radt & Georg] 734
  Introduction to Chemical Pharmacology, [Barlow] 1253
Chemotherapy
  Antimicrobial Therapy in Medical Practice, [Flippin & Eisenberg] 232
Children: See also *Infants; Pediatrics*
  Caring for the Sick Child at Home, [Lowndes] 1801
  Child Behavior, [Ilg] 1253
  Diseases of Infancy and Childhood, [Shèldon] 232
  Diseases of the Ear, Nose, and Thoat in Children, [Wilson] 409
  Hearing Therapy *for* Children, [*Streng* & others] 1171
  Moto-Kinesthetic Speech Training, [Young & Hawk] 232
  Psychoanalytic Study of the Child, [Eissler & others] 532
  Psychopathology and Education of the Brain-Injured Child, [Strauss & Kephart] 1698
Ching Chun Li, Bay, E. B., and others, Population Genetics, 531
Ciba Foundation Colloquia on Ageing
  Volume I: General Aspects, [Wolstenholme & Cameron] 1333
Ciba Foundation Colloquia on Endocrinology
  Volume *VIII:* Human Adrenal Cortex, [Wolstenholme & Cameron] 532
Clark, H. B., Jr., Practical Oral Surgery, 827
Colowick, S. P., and Kaplan, N. O., editors, Methods in Enzymology, 531
Communicable Diseases
  Communicable Diseases, [Top & others] 1075
  Control of Communicable Diseases in Man, [American Public Health Ass'n.] 734
Conel, J. L., *Postnatal Development of the* Human Cerebral Cortex, 824
Cough Syncope, [Derbes & Kerr] 1253
Cowdry, E. V., Cancer Cells, 1577
Cranium
  Atlas of Roentgen Anatomy of the Skull, [Etter & others] 978
Denial of Illness, [Weinstein & Kahn] 409
Dentistry
  Practical Oral Surgery, [Clark] 827
DePalma, A., and others, editors, Clinical Orthopaedics, 1421
Derbes, V. J., and Kerr, A., Jr., Cough Syncope, 1253
Dermatology
  Systemic Associations and Treatment of Skin Diseases, [Wiener] 1075
Design
  Experimental Design and Its Statistical Basis, [Finney] 734
Deutschberger, O., Fluoroscopy in Diagnostic Roentgenology, 89
Dextran: Its Properties and Use in Medicine, [Squire & others] 1074
Diagnosis
  Bedside Diagnosis, [Seward] 91
  Bone and Joint X-Ray Diagnosis, [Ritvo] 533
  Diagnosis of Congenital Heart Disease, [Kjellberg] 1421
  Die Organpunktion in der klinischen Diagnostik, [Lüdin] 978
  Fluoroscopy in Diagnostic Roentgenology, [illegible]
  [illegible] cts of Diagnosis and [illegible] 1578
  [illegible] [Holmes & Robbins] 1420
  Röntgendiagnostik im Kindesalter, [Schmid & Weber] 1578
Diehl, H. S., Healthful Living, 532
Diethelm, O., *Treatment in Psychiatry,* 1171
Disease
  Prevention of Disease in Everyday Practice, [Givner & others] 827
Doctor's Book of Hours Including Some Dimensions of the Emotions, [Moore] 1170
Donahue, W., editor, Housing the Ageing, 90
Dunham, E. C., Premature Infants, 1698
Duodenum
  Surgery of Stomach & Duodenum, [Welch] 1334
Ear: See Otorhinolaryngology
Ecker, A., and Riemenschneider, P. A., Angiographic Localization of Intracranial Masses, 1252
Education
  Psychopathology and Education of the Brain-Injured Child, [Strauss & Kephart] 1698
Eissler, R. S., and others, editors, Psychoanalytic Study of the Child, 532
Electricity
  Atlas zur Spurenkunde der Elektrizität, [Jellinek] 1578
Electrolytes
  Clinical Disorders of Hydration and Acid-Base Equilibrium, [Welt] 530
Elliott, K. A. C., Page, I. H., and Quastel, J. H., editors, Neurochemistry, 1169
Elsevier's Encyclopædia of Organic Chemistry, [Radt & Georg] 734
Emberger, M. R., and Hall, M. R., Scientific writing, 1073
Encyclopedia
  Elsevier's Encyclopædia of Organic Chemistry, [Radt & Georg] 734
Endrocrinology
  Atlas de chirurgie thyroïdienne, [Francillon & Gabrielle] 533
  Ciba Foundation Colloquia on Endocrinology. Volume VIII. Human Adrenal Cortex, [*Wolstenholme & Cameron*] 532
  Diseases of the Thyroid Gland, [Gargill & Lesses] 89
  Handbuch der inneren Medizin, [v. Bergmann & others] 232
  Hormones: Volume III., [Pincus & Thimann] 1171
  International Symposium, Hypophyseal Growth *Hormone, [Smith & others]* 824
  Surgical Physiology of the Adrenal Cortex, [Hardy] 826
  Textbook of Endocrinology, [Williams] 1421
  Thyroid, [Werner] 1801
Enzymes
  Methods in Enzymology, [Colowick & Kaplan] 531
Epstein, B. S., Spine: Radiological Text and Atlas, 90
Esche, S., Leonardo da Vinci: Das anatomische Werk mit kritischem Katalog und Abbildungen, 1251
Etter, L. E., and others, Atlas of Roentgen Anatomy of the Skull, 978
Exton-Smith, A. N., Medical Problems of Old Age, 1334
Faber, H. K., Pathogenesis of Poliomyelitis, 1073
Fabricant, N. D., editor, J.A.M.A. Clinical Abstracts of Diagnosis and Treatment, 1578
Faith, Reason and Modern Psychiatry, [Braceland] 1253
Fascia
  Transplantation of Tissues, [Peer] 734
Fever
  Prolonged and Perplexing Fevers, [Keefer & Leard] 530
Finney, D. J., Experimental Design and Its Statistical Basis, 734
Fishman, A. P., and others, editors, Cardiology Notebook for Preliminary Instruction in Medical *Curricula,* 825
Flippin, H. F., and Eisenberg, G. M., Antimicrobial Therapy in Medical Practice, 232
Fluoroscopy in Diagnostic Roentgenology, [Deutschberger] 89
Foot
  Postural Complex, [Jones] 1333
Forkner, C. E., editor, Practitioners' Conferences Held at the New York Hospital-Cornell Medical Center, 90
Fractures and Joint *Injuries,* [Watson-Jones] 1420
Francillon, J., and Gabrielle, C., Atlas de chirurgie thyroïdienne, 533
Freud, Sigmund (1856-1939)
  Life and Work of Sigmund Freud, [Jones] 1252
Galdston, I., Society and Medicine, 827
Gargill, S. L., and Lesses, M. F., Diseases of the Thyroid Gland, 89
General Practice
  Clinical Pathology in General Practice, [British Medical Journal] 531
  Psychiatry for the Family Physician, [Aldrich] 1801
Genetics
  Population Genetics, [Ching Chun Li & others] 531
Givner, I., Bruger, M., and others, *Prevention* of Disease in Everyday Practice, 827
Glees, P., Neuroglia, 826
Great Britain
  History of the Second World War, [MacNalty & Crew] 91
Greenstein, J. P. and Haddow, A., editors, Advances in Cancer Research, 1421
Gynecology: Surgical Techniques, [Lowrie] 1170
Habas, R. A., How to Live Without Liquor, 409
Hachiya, M., Hiroshima Diary, 1801
Hardy, J. D., Surgical Physiology of the *Adrenal Cortex,* 826
Harvey, A. M., and others, Systemic Lupus Erythematosus, 1497
Health
  Good Health for You, Your Family, and Your Community, [Walke & others] 733
  Healthful Living, [Diehl] 532
  Medical and Public Health Laboratory Methods, [Simmons & Gentzkow] 734
  Modern Health, [Otto & others] 532
  School Health Sourcebook, [Byrd] 1075
Hearing Therapy for Children, [Streng & others] 1171
Heart
  Cardiac Emergencies and Heart Failure, [Master & others] 1333
  Cardiology Notebook for Preliminary Instruction in Medical Curricula, [Fishman & others] 825
  Diagnosis of Congenital Heart Disease, [Kjellberg & others] 1421
  Primer of Electrocardiography, [Burch & Winsor] 89
Hematology, [Sturgis] 91
Hemorrhagic disorders, [Stefanini & Dameshek] 1577
Herbut, P. A., Pathology, 409
Herdan, G., Statistics of Therapeutic Trials, 1251
Heredity: See Genetics
Hill, A. B., Principles of Medical Statistics, 827
Hillemand, P., Bensaude, A., and Loygue, J., Les maladies de l'anus et du canal anal, 91
Hiroshima Diary, [Hachiya] 1801
History of the Texas Medical Association, [Nixon] 1577
Hoch, P. H., and Zubin, J., editors, Psychiatry and the Law, 1334
Holmes, G. W., and Robbins, L. L., Roentgen Interpretation, 1420
Hormones· Physiology, Chemistry and Applications, [Pincus & Thimann] 1171
Housing the Aging, [Donahue] 90
Hryntschak, T., Suprapubic Prostatectomy with Primary Closure of the Bladder by an Original Method, 1577
Hughes, B., Visual Fields, 978
Hurlock, E. B., Adolescent Development, 1075
Hydration
  Clinical Disorders of Hydration and Acid-Base Equilibrium, [Welt] 530
Hygiene: See also Health
  Airborne Contagion *and Air Hygiene,* [Wells] 90
  Sexual Hygiene and Pathology, [Oliven] 530
Ilg, F. L., Child Behavior, 1253
Infants: See also Children; Pediatrics
  Diseases of Infancy and Childhood, [Sheldon] 232
  Postnatal Development of the Human Cerebral Cortex, [Conel] 824
  Premature Infants, [Dunham] 1698

Infection
  Airborne Contagion and Air Hygiene, [Wells] 90
Internal Medicine
  Handbuch der inneren Medizin, [v. Bergmann & others] 232
International Association of Gerontology, Old Age in Modern World: Report of the Third Congress, 1698
International Council of Military Sports, Journées internationales de médecine sportive militaire, 1171
International Symposium, Hypophyseal Growth *Hormone, [Smith & others] 824*
Intestines
  Intestinal Obstructions, [Wangensteen] 978
Jellinek, S., Atlas zur Spurenkunde der Elektrizität, 1578
Johnson, F. H., editor, Luminescence of Biological *Systems, 1577*
Joints
  Bone and Joint X-Ray Diagnosis, [Ritvo] 533
  Fractures and Joint Injuries, [Watson-Jones] 1420
Jones, E., Life and Work of Sigmund Freud, 1252
***Jones, L.**, Postural Complex, 1333*
Josephy, E., and Radt, F., Elsevier's Encyclopædia of Organic Chemistry, 734
J.A.M.A. Clinical Abstracts of Diagnosis and Treatment, [Fabricant] 1578
Keefer, C. S., and Leard, S. E., Prolonged and Perplexing Fevers, 530
Keratoplasty, [Paton] 1420
Kidneys
  Clinical Pathologic Conferences of Cook County Hospital: Cardiovascular-Renal Problems, [Popper & Kushner] 1170
Killian, H., and Dönhardt, A., Wiederbelebung, 1497
Kjellberg, S. R., and others, Diagnosis of Congenital Heart Disease, 1421
Knee
  Radiographic Atlas of Skeletal Development of the Knee, [Pyle & Hoerr] 825
Kneise, O., and Stolze, M., Handatlas der Cystoskopie und Urethrocystoskopie, 827
Laboratory
  Medical and Public Health Laboratory Methods, [Simmons & Gentzkow] 734
Lectures on Scientific Basis of Medicine, [British Postgraduate Medical Federation] 1253
Lewison, E. F., Breast Cancer and Its Diagnosis and Treatment, 733
Lightning
  Atlas zur Spurenkunde der Elektrizität, [Jellinek] 1578
Long, R. H., Physician and the Law, 1251
Lowden, T. G., Casualty Department, 1074
Lowndes, M., Caring for the Sick Child at Home, 1801
Lowrie,*R. J., compiler and editor, Gynecology: Surgical Techniques, 1170
Lüdin, H., Die Organpunktion in der klinischen Diagnostik, 978
Luminescence of Biological Systems, [Johnson] 1577
Lupus Erythematosus
  Systemic Lupus Erythematosus, [Harvey & others] 1497
MacNalty, A. S., and Crew, F. A. E., editors, History of the Second World War, 91
Maluf, N. S. R., translator, Suprapubic Prostatectomy with Primary Closure of the Bladder by an Original Method, [by Hryntschak] 1577
Masserman, J. H., Practice of Dynamic Psychiatry, 1497
Master, A. M., Moser, M., and Jaffe, H. L., Cardiac Emergencies and Heart Failure, 1333
Medical and Public Health Laboratory Methods, [Simmons & Gentzkow] 734
Medical History
  History of the Second World War, [MacNalty & Crew] 91
  Short History of Medicine, [Ackerknecht] 1073
  Story of Medicine, [Walker] 826
Medical Jurisprudence
  Physician and the Law, [Long] 1251
  Psychiatry and the Law, [Hoch & Zubin] 1334
Medical Problems of Old Age, [Exton-Smith] 1334
Medicine
  Autoradiography in Biology and Medicine, [Boyd] 733
  Lectures on Scientific Basis of Medicine, [British Postgraduate Medical Federation] 1253
  Philosophische Propädeutik der Medizin; [Niedermeyer] 825
  Society and Medicine, [Galdston] 827
  Textbook of Medicine, [Cecil & others] 91
Medlar, E. M., Behavior of Pulmonary Tuberculous Lesions, 89
Microbiology
  Chemistry of Micro-Organism, [Bracken] 531
Military Medicine
  History of the Second World War, [MacNalty & Crew] 91
Military Medicine—Continued
  Journées internationales de médecine sportive militaire, 1171
Miller, S. E., editor, Textbook of Clinical Pathology, 1578
Mohr, L., and Staehelin, R., Handbuch der inneren Medizin, 232
Moore, M., Doctor's Book of Hours Including Some Dimensions of the Emotions, 1170
Moore, Merrill (1903-)
  Poet and Psychiatrist, Merrill Moore, M.D., [Wells] 1421
Morrison, W. W., Diseases of the Ear, Nose and Throat, 734
Moto-Kinesthetic Speech Training, [Young & Hawk] 232
Mouth
  Practical Oral Surgery, [Clark] 827
Muscles
  Transplantation of Tissues, [Peer] 734
National Research Council
  Symposium on Atherosclerosis, 733
Neck
  Praktische Anatomie, [von Lanz & Wachsmuth] 1251
Neurology: See also Brain
  Clinical Neurology, [Baker] 977
  Management of Disorders of the Autonomic Nervous System, [Palumbo] 734
  Neurochemistry, [Elliott & others] 1169
  Neuroglia: Morphology and Function, [Glees] 826
  Visual Fields, [Hughes] 978
***Niedermeyer, A.**, Philosophische Propädeutik der* Medizin, 825
Nixon, P. I., History of the Texas Medical Association, 1577
North Atlantic Treaty Organization
  Collected Papers on Aviation Medicine, 1073
Nose: See Otorhinolaryngology
Nutrition Sourcebook, [Byrd] 1074
Occupational Therapy
  Textbook of Occupational Therapy, [O'Sullivan] 1497
Oelssner, W., Veränderungen des Thoraxröntgenbildes bei Brustkrebspatienten, 533
Old Age
  Ciba Foundation Colloquia on Ageing: Volume I: General Aspects, [Wolstenholme & Cameron] 1333
  Housing the Aging, [Donahue] 90
  Medical Problems of Old Age, [Exton-Smith] 1334
  Old Age in Modern World: Report of the Third Congress of the International Association of Gerontology, 1698
Oliven, J. F., Sexual Hygiene and Pathology, 530
Ophthalmology
  Anesthesia in Ophthalmology, [Atkinson] 1420
  Keratoplasty, [Paton] 1420
  Modern Trends in Ophthalmology, [Sorsby] 90
Orthopedics
  Clinical Orthopaedics, [De Palma] 1421
  Lehrbuch der praktischen Orthopädie, [Aberle] 90
O'Sullivan, E. N. M., Textbook of Occupational Therapy, 1497
Otorhinolaryngology
  Diseases of the Ear, Nose and Throat, [Morrison] 734
  Diseases of the Ear, Nose, and Throat in Children, [Wilson] 409
Otto, J. H., Julian, C. J., and Tether, J. E., Modern Health, 532
Palumbo, L. T., Management of Disorders of the Autonomic Nervous System, 734
Parasitology
  Introduction to Parasitology, [Chandler] 1252
Pathology
  Behavior of Pulmonary Tuberculous Lesions, [Medlar] 89
  Clinical Pathologic Conferences of Cook County Hospital: Cardiovascular-Renal Problems, [Popper & Kushner] 1170
  Clinical Pathology in General Practice, [British Medical Journal] 531
  Pathology, [Herbut] 409
  Pathology for the Surgeon, [Boyd] 824
  Sexual Hygiene and Pathology, [Oliven] 530
  Textbook of Clinical Pathology, [Miller] 1578
Patients
  Talking with Patients, [Bird] 826
Paton, R. T., Keratoplasty, 1420
Pediatrics: See also Children; Infants
  Röntgendiagnostik im Kindesalter, [Schmid & Weber] 1578
Peer, L. A., Transplantation of Tissues, 734
Pelvo-Spondylitis Ossificans: Rheumatoid or Ankylosing Spondylitis, [Romanus & Ydén] 827
Perimetry
  Visual Fields, [Hughes] 978
Pharmacopeia of the United States of America *(U. S. P. XV), 977*
Pharmacy
  Introduction to Chemical Pharmacology, [Barlow] 1253
Philosophische Propädeutik der Medizin, [Nied*ermeyer] 825*
Physicians
  Hiroshima Diary: Journal of a Japanese Physician, [Hachiya] 1801
  Life and Work of Sigmund Freud, [Jones] 1252
  Physician and the Law, [Long] 1251
  Poet and Psychiatrist, Merrill Moore, M.D., [Wells] 1421
Physics
  Essentials of Biological and Medical Physics, [Stacy & others] 825
Physiology: See also Anatomy
  Clinical Disorders of Hydration and Acid-Base Equilibrium, [Welt] 530
  Human Physiology, [Winton & Bayliss] 1169
  Kreislaufregulation, [Reindell & others] 533
  Surgical Physiology of the Adrenal Cortex, [Hardy] 826
Pincus, G., and Thimann, K. V., editors, Hormones, 1171
Poetry
  Doctor's Book of Hours Including Some Dimensions of the Emotions, [Moore] 1170
  Poet and Psychiatrist, Merrill Moore, M.D., [Wells] 1421
Poliomyelitis
  Pathogenesis of Poliomyelitis, [Faber] 1073
Popper, H., and Kushner, D. S., editors, Clinical Pathologic Conferences of Cook County Hospital: Cardiovascular-Renal Problems, 1170
Population Genetics, [Ching Chun Li & others] 531
Postell, W. D., Applied Medical Bibliography for Students, 1497
Postural Complex, [Jones] 1333
Practitioners' Conferences Held at the New York Hospital-Cornell Medical Center, [Forkner] 90
Preventive Medicine
  Prevention of Disease in Everyday Practice, [Givner & others] 827
Prostate
  Suprapubic Prostatectomy with Primary Closure of the Bladder by an Original Method, [Hryntschak] 1577
Psychiatry
  Denial of Illness, [Weinstein & Kahn] 409
  Doctor's Book of Hours Including Some Dimensions of the Emotions, [Moore] 1170
  Faith, Reason and Modern Psychiatry, [Braceland] 1253
  Poet and Psychiatrist, Merrill Moore, M.D., [Wells] 1421
  Practice of Dynamic Psychiatry, [Masserman] 1497
  Psychiatry and the Law, [Hoch & Zubin] 1334
  Psychiatry for the Family Physician, [Aldrich] 1801
  Psychoanalytic Study of the Child, [Eissler & others] 532
  Treatment in Psychiatry, [Diethelm] 1171
Psychology
  Adolescent Development, [Hurlock] 1075
  Denial of Illness, [Weinstein & Kahn] 409
  Textbook of Occupational Therapy with Chief Reference to Psychological Medicine, [O'Sullivan] 1497
Psychopathology and Education of the Brain-Injured Child, [Strauss & Kephart] 1698
Psychosomatic Medicine
  Anxiety and Stress, [Basowitz & others] 1169
  How to Live 365 Days a Year, [Schindler] 1334
Public Health: See Health
Pyle, S. I., and Hoerr, N. L., Radiographic Atlas of Skeletal Development of the Knee, 825
Radiology: See also Roentgenology
  Autoradiography in Biology and Medicine, [Boyd] 733
Radt, F., and Georg, A., editors, Elsevier's Encyclopædia of Organic Chemistry, 734
Raymond, L., Adoption . . . and After, 1171
Reason
  Faith, Reason and Modern Psychiatry, [Braceland] 1253
Reindell, H., and others, Kreislaufregulation, 533
Resuscitation
  Wiederbelebung, [Killian & Dönhardt] 1497
Rheumatic Diseases
  Research and Education in Rheumatic Diseases, [Bunim] 533
Ritvo, M., Bone and Joint X-Ray Diagnosis, 533
Roentgenology: See also Radiology
  Angiographic Localization of Intracranial Masses, [Ecker] 1252
  Atlas of Roentgen Anatomy of the Skull, [Etter & others] 978
  Bone and Joint X-Ray Diagnosis, [Ritvo] 533
  Fluoroscopy in Diagnostic Roentgenology, [Deutschberger] 89
  Pelvo-Spondylitis Ossificans: Rheumatoid or Ankylosing Spondylitis, [Romanus & Ydén] 827
  Radiographic Atlas of Skeletal Development of the Knee, *[Pyle & Hoerr] 825*
  Roentgen Interpretation, [Holmes & Robbins] *1420*

Roentgenology—Continued
  Röntgendiagnostik im Kindesalter, [Schmid & Weber] 1578
  Spine: Radiological Text and Atlas, [Epstein] 90
  Veränderungen des Thoraxröntgenbildes bei Brustkrebspatienten, [Oelssner] 533
Romanus, R., and Ydén, S., Pelvo-Spondylitis Ossificans: Rheumatoid or Ankylosing Spondylitis, 827
Ross, D. E., Salivary Gland Tumors, 1578
Salivary Gland Tumors, [Ross] 1578
Schindler, J. A., How to Live 365 Days a Year, 1334
Schmid, F., and Weber, G., Röntgendiagnostik im Kindesalter, 1578
School Health Sourcebook, [Byrd] 1075
Science
  Science Book of the Human Body, [Sproul] 1253
  Scientific Writing, [Emberger & Hall] 1073
Seward, C., Bedside Diagnosis, 91
Sexual Hygiene and Pathology, [Oliven] 530
Sheldon, W., Diseases of Infancy and Childhood, 232
Simmons, J. S., and Gentzkow, C. J., editors, Medical and Public Health Laboratory Methods, 734
Smith, R. W., Gaebler, O. H., and Long, C. N. H., editors, International Symposium, Hypophyseal Growth Hormone, 824
Society and Medicine, [Galdston] 827
Somatotropin
  International Symposium, Hypophyseal Growth Hormone, [Smith & others] 824
Sorsby, A., editor, Modern Trends in Ophthalmology, 90
Speech
  Moto-Kinesthetic Speech Training, [Young & Hawk] 232
Spine
  Pelvo-Spondylitis Ossificans: Rheumatoid or Ankylosing Spondylitis, [Romanus & Ydén] 827
  Spine: Radiological Text and Atlas, [Epstein] 90
Sproul, E. E., Science Book of the Human Body, 1253
Squire, J. R., and others, Dextran, 1074
Stacy, R. W., and others, Essentials of Biological and Medical Physics, 825
Statistics
  Experimental Design and Its Statistical Basis, [Finney] 734
  Principles of Medical Statistics, [Hill] 827
  Statistics of Therapeutic Trials, [Herdan] 1251
Stefanini, M., and Dameshek, W., Hemorrhagic Disorders, 1577
Stomach
  Surgery of Stomach & Duodenum, [Welch] 1334
Strauss, A. A., and Kephart, N. C., Psychopathology and Education of the Brain-Injured Child, 1698
Streng, A., and others, Hearing Therapy for Children, 1171
Stress
  Anxiety and Stress, [Basowitz & others] 1169
Students, Medical
  Applied Medical Bibliography for Students, [Postell] 1497
Sturgis, C. C., Hematology, 91
Surgery
  Atlas de chirurgie thyroïdienne, [Francillon & Gabrielle] 533
  Casualty Department, [Lowden] 1074
  Gynecology: Surgical Techniques, [Lowrie] 1170
  [illegible] [Wangensteen] 978
  [illegible] 20
  [illegible] n, [Boyd] 824
  [illegible] Clark] 827
  [illegible] with Primary Closure of the Bladder by an Original Method, [Hryntschak] 1577
  Surgery of Stomach & Duodenum, [Welch] 1334
  Surgical Physiology of the Adrenal Cortex, [Hardy] 826
  Transplantation of Tissues, [Peer] 734
Syncope
  Cough Syncope, [Derbes & Kerr] 1253
Systemic Associations and Treatment of Skin Diseases, [Wiener] 1075
Talking with Patients, [Bird] 826
Tendons
  Transplantation of Tissues, [Peer] 734
Texas Medical Association
  History of the Texas Medical Association, [Nixon] 1577
Therapeutics: See also Pharmacy
  Antimicrobial Therapy in Medical Practice, [Flippin & Eisenberg] 232
  J.A.M.A. Clinical Abstracts of Diagnosis and Treatment, [Fabricant] 1578
  Statistics of Therapeutic Trials, [Herdan] 1251
Thienes, C. H., and Haley, T. J., Clinical Toxicology, 1074
Thorax
  Veränderungen des Thoraxröntgenbildes bei Brustkrebspatienten, [Oelssner] 533
Throat: See Otorhinolaryngology
Thyroid
  Atlas de chirurgie thyroïdienne, [Francillon & Gabrielle] 533
  Diseases of the Thyroid Gland, [Gargill & Lesses] 89
  Thyroid, [Werner] 1801
Tissues
  Die Organpunktion in der klinischen Diagnostik, [Lüdin] 978
  Transplantation of Tissues, [Peer] 734
Top, F. H., and others, Communicable Diseases, 1075
Toxicology
  Clinical Toxicology, [Thienes & Haley] 1074
Transplantation of Tissues, [Peer] 734
Trauma: See also World War II
  Casualty Department, [Lowden] 1074
  Fractures and Joint Injuries, [Watson-Jones] 1420
Tuberculosis
  Behavior of Pulmonary Tuberculous Lesions, [Medlar] 89
Tumors: See also Cancer
  [illegible]tion of Intracranial [illegible]
  [illegible], [Ross] 1578
Urology
  Handatlas der Cystoskopie und Urethrocystoskopie, [Kneise & Stolze] 827
Vinci, Leonardo da
  Leonardo da Vinci: Das anatomische Werk mit kritischem Katalog und Abbildungen, [Esche] 1251
Viruses
  Principles of Animal Virology, [Burnet] 91
Visual Fields, [Hughes] 978
von Lanz, T., and Wachsmuth, W., Praktische Anatomie: Ein Lehr- und Hilfsbuch der anatomischen Grundlagen ärztlichen Handelns, 1251
Walke, N. S., Doscher, N., and Caddy, G. G., Good Health for You, Your Family, and Your Community, 733
Walker, K., Story of Medicine, 826
Wangensteen, O. H., Intestinal Obstructions, 978
Watson-Jones, Sir Reginald, Fractures and Joint Injuries, 1420
Weinstein, E. A., and Kahn, R. L., Denial of Illness, 409
Welch, C. E., Surgery of the Stomach & Duodenum, 1334
Wells, H. W., Poet and Psychiatrist, Merrill Moore, M.D., 1421
Wells, W., translator and editor, Hiroshima Diary, (by Hachiya) 1801
Wells, W. F., Airborne Contagion and Air Hygiene, 90
Welt, L. G., Clinical Disorders of Hydration and Acid-Base Equilibrium, 530
Werner, S. C., editor, Thyroid, 1801
Whitehouse, J., translator, Pelvo-Spondylitis Ossificans: Rheumatoid or Ankylosing Spondylitis, (by Romanus and Ydén) 827
Wiener, K., Systemic Associations and Treatment of Skin Diseases, 1075
Wilkinson, J. F., editor, Modern Trends in Blood Diseases, 1073
Williams, R. H., editor, Textbook of Endocrinology, 1421
Wilson, T. G., Diseases of the Ear, Nose, and Throat in Children, 409
Winton, F. R., and Bayliss, L. E., Human Physiology, 1169
Wolstenholme, G. E. W., and Cameron, M. P., editors, Ciba Foundation Colloquia on Ageing, General Aspects, 1333
  Ciba Foundation Colloquia on Endocrinology, Human Adrenal Cortex, 532
World War II
  Hiroshima Diary, [Hachiya] 1801
  History of the Second World War, [MacNalty & Crew] 91
Writing
  Scientific Writing, [Emberger & Hall] 1073
Young, E. H., and Hawk, S. S., Moto-Kinesthetic Speech Training, 232

C

C-REACTIVE PROTEIN
  in inflammatory disease, [Ruggieri] 1569—ab
  in leprosy, [Rabson] 1684—ab
  in rheumatic heart disease, not correlate with *Aschoff Bodies*, [Elster] 1684—ab
  test, [Roantree] 1684—ab
CADUCEUS
  insignia of Army Medical Corps, [Frankel] 398—C
CAFFEINE
  in instant and decaffeinated coffee, [Chemical Laboratory article] *250
CAISSON DISEASE
  from skin diving, [Burns] *5
CALCINOSIS
  universalis, [Arendt] 1059—ab
CALCIUM
  carbonate plus milk to control hyperchlorhydria, [Boros] 714—ab
  diet low in, for phosphocalcic urinary lithiasis, [Génot] 525—ab
CALCIUM—Continued
  Disodium Versenate: See Edathamil Calcium Disodium
  lactate plus vitamin D for parathyroid tetany, 94
CALORIES
  high in parenteral feeding after major surgery, Brazil, 699
  more consumed in Britain last year, 804
  needed by miners and sedentary workers, England, 506
CAMOQUIN: See Amodiaquin
CAMPS
  summer, sanitation, Norway, 143
CANADA
  approved medical schools and schools of basic sciences in, *565; *568
CANADIAN
  Medical Ass'n. and British M.A. joint meeting, 141
CANCER
  absent after use of placental extract, Italy, 1144
  American Chemical Society symposium, 131
  blood grouping in, England, 394
  commissions, A.M.A. resolution on state socie[illegible]
  [illegible]: specific organs
  [illegible] tumors, [Diddle] 1415—ab
  diagnosis of metastatic carcinoid, [Sjoerdsma & others] 397—C
  diagnosis, vaginal smears in gynecology, [Allan] 1800—ab
  epidemiology in U. S., [Heller & others] *1628
  etiology: cutting oils, [Mastromatteo; Gilman] 1168—ab
  etiology: injection site of procaine penicillin in sesame oil? 1336
  etiology: smoking and air pollution in lung cancer, [Ringertz] 515—ab; (England) 1323
  etiology: tobacco tars effect on skin and smoke inhalation in mice, England, 392
  etiology: trauma in, Switzerland, 1050
  Information Institute for science teachers, 619
  inhibited by essential hypertension, [Zondek] 1683—ab
  metastases after radium and surgery for uterus cancer, Italy, 1325
  metastases (carcinoid), diagnostic test, [Sjoerdsma & others] 397—C
  metastases, contralateral pulmonary; in bronchi cancer, [Balmes] 1488—ab
  metastases from malignant pheochromocytoma, [Davis] 971—ab
  metastases, Krukenberg tumors, diagnosis, [Diddle] 1415—ab
  metastases to bone from breast and prostate, hydrocortisone for, [Gilbert-Dreyfus] 1061—ab
  metastases to breast, management, [Pearson & others] *1701
  metastases to liver from intestinal carcinoid, with tricuspid stenosis and cyanosis, [Olesen] 222—ab
  metastases to liver from pancreas, [Diagnostic Problems] [Thorpe] *32; (comment) [Elman] *33
  metastases with serous effusions, nitrogen mustard for, [Weisberger & others] *1704
  morbidity in mouth cancer, sex trends, [Russel] 1696—ab
  mortality in Australia, [Lancaster] 1240—ab
  odor from, chlorophyll for, (reply) [Joseph] 70—C
  precancerous condition: gallbladder calculi? 1424
  precancerous condition: hydatiform mole? Care of, after dilatation and curettage, 736
  precancerous condition: ulcerative colitis, England, 393
  precancerous condition: venereal disease in vulva cancer, [Collins] 1414—ab
  register, Danish, 504
  registry necessary for hospital approval? 685
  serum density (optical) in, [Quinn] 1696—ab
  spread of breast cancer, [Price] *1345
  surgical treatment, hypophysectomy; adrenal insufficiency after, (reply) [Mellinger] 738
  surgical treatment of recurrences, [Schwalger] 815—ab; (and metastases) [Rosolleck] 1489—ab
  surgical treatment, physiology after hemispherectomy, [Austin] 225—ab
  survival, statistical review, England, 1564
  telling patient he has, [Stanley] 1327—C
  treatment, N. Z., 1145
  treatment, betatron, Switzerland, 212
  treatment, chloramphenicol in large doses, [Krakoff] 526—ab
  treatment, delay, England, 143
  treatment, nitrogen mustard, England, 393
  treatment of advanced type in pleural and peritoneal cavities, Au^{198}, England, 210
  treatment, radiotherapy, [Fletcher] 151—ab
  UNESCO role in world-wide problem, 1781
  WHO program proposed, 1047
CANDIDA: See Moniliasis
CANICOLA Fever: See Leptospirosis
CARBINOXAMINE MALEATE
  tests and standards, 1121

- CARBOHYDRATES
  - in infant feeding, 234
  - role in dental caries, 1335
  - ventricular arryhythmias from digitalis glycosides [Page] 973—ab
- CARBON DIOXIDE
  - effervescent tablet as source for uterotubal insufflation, [Rubin] *1190
  - in resuscitation of the newborn, [Tovell & others] *1337
  - toxic concentration in air, headaches from, 1802
- CARBON DISULFIDE
  - poisoning, [Kleinfeld & Tabershaw] *677
- CARBON MONOXIDE
  - poisoning during pregnancy cause bleeding, fetal death, or abortion? 1172
  - poisoning from skin diving, [Burns] *5
- CARBON TETRACHLORIDE
  - poisoning cause mental disturbance? 634
- CARCINOID
  - in small intestine with liver metastases, tricuspid stenosis and cyanosis, [Olesen] 222—ab
  - *in small intestine, pulmonary stenosis from* serotonin in tumor? [Carlsen] 223—ab
  - metastatic, diagnosis, [Sjoerdsma & others] 397—C
- CARCINOMA: See Cancer
- CARDIAC PACEMAKER
  - for heart arrest, [Zoll & others] *1428; [Zoll] 1681—ab
  - for Stokes-Adams disease, [Rose & Wartonick] *1015
- CARDIOLOGY: See Heart
- CARDIOPERICARDIOMYOPEXY
  - for angina pectoris and rheumatic heart disease, 158: 1459, Aug. 20, 1955; (correction) [Gorelik] 159: 708, Oct. 15, 1955
- CARDIOSPASM: See Stomach
- CARDIOVASCULAR DISEASE
  - deaths decreased in U.S., 1954, 692
  - diagnosis, image amplifier in, [Zimmerman] *1449
  - USPHS booklet on mortality, prevalence and control, 1041
- CARDOL
  - new anthelmintic, India, 1399
- CARTILAGE
  - *in knee joint, loose; surgery for, 233*
- CASH
  - disability benefits, compulsory; A.M.A. viewpoint, *1017; (resolution) 1767
  - *medical care dollar, 1929-1953, 36—E; (Bu*reau article) [Dickinson & Raymond] *41; *119
- CASHEW NUTS: See Nuts
- CASTRATION: See Sterilization, Sexual
- CATARACT
  - posterior cupuliform, extracapsular extraction; capsulotomy later? 830
- CATHARTICS
  - mineral oil, prolonged use; lipoid pneumonia from, [Meyers] 150—ab
- CATHETERS
  - duodenal, for quinacrine in teniasis, Turkey, 623
  - indwelling, preventing blocking by crystal deposits, (reply) [Cross] 1336
- CATTLE: See Cows
- CAUSALGIA
  - treatment, chlorpromazine, [Dabbs & Peirce] *1626
- CAVERNOSTOMY: See Tuberculosis of Lung
- CECUM
  - cancer [Lynch] 713—ab
- CELIAC DISEASE
  - diagnosis, etiology, treatment, 828
- CELLS
  - giant cardiac, origin in rheumatic fever, [Wagner] 1576—ab
  - squamous cell carcinoma and cutting oils, [Mastromatteo; Gilman] 1168—ab
- CELLULIN COREALE
  - in cardiac therapy, [Ferrarini] 1154—ab
- CEPHALHEMATOMA
  - complicating E. coli meningitis in infant, [Gordon & Aronow] *1288
- CEPHALOSPORIN N
  - new penicillin, England, 1397
- CEREBELLUM
  - presenile ataxia in chronic alcoholism [Skillicorn] 816—ab
- CEREBROSPINAL FLUID
  - diagnostic errors from high leukocyte count in subdural hematoma, [Schatten & Nulsen] *539
  - diagnostic study approaching a crisis? [Kafka] 145—ab
  - in diagnosis of *purulent meningitis*, [Etteldorf] *746
  - shunt into peritoneal cavity for hydrocephalus and intracranial pressure, [Jackson] 405—ab
- CERVICAL SYNDROME
  - causes and therapy, [Krusen] *1282
- CESAREAN SECTION
  - anesthesia effect on infant mortality in, [Lund] *1586
  - repeated, statistics, Brazil, 699
- CESIUM
  - radioactive, treatment, England, 1325
- CETYLTRIMETHYLAMMONIUM BROMIDE
  - to sterilize blankets, [Blowers] 528—ab
- CHAGAS' Disease: See Trypanosomiasis
- CHAMBER OF COUNCILLORS to American Medicine, A.M.A. resolutions on, 1767
- CHAMBERS OF COMMERCE
  - physician and, [Dessen] *1441
- CHARCOT'S JOINTS
  - bilateral, of tabes dorsalis; testosterone for, 153
- CHARTS
  - clinical, Joint Commission's recommendations on signatures and/or initials on, 684
- CHEESE
  - antibiotic-resistant organisms in, Canada, 1788
- CHEMICALS
  - A.M.A. symposium on health hazards in home, agriculture, and industry, 38
  - in foods, Switzerland, 1566
- CHEMOTHERAPY: See also under names of specific drugs
  - bacterial resistance, [Steen] 1240—ab; [Sweany] *1248—ab*
  - fails to prevent complications of measles, [Weinstein] 1683—ab
  - of acute leukemia, effect on survival, [Haut] 1249—ab
  - of bacterial infections, (England) 141; 1458—E
  - of myeloid leukemia, [Bousser] 1494—ab
  - of tsutsugamushi disease, [Katsura] 73—ab
  - of tuberculosis, cavities and neocavities after, [Bernou] 75—ab
  - of tuberculosis of lung, prolonged, [Dooneief] 1408—ab
  - of tuberculous lymph nodes, [Mutschler] 1569—ab
  - tuberculous lesions after, [Dick] 822—ab
- CHEST: See Thorax
- CHICKENPOX
  - vesicular fluid for herpes zoster, India, 1399
- CHILDBIRTH: See Labor; Medicolegal Abstracts at end of letter M
- CHILDREN
  - accidents in, after cortisone, France, 703
  - accidents in school, England, 701
  - bone x-rays after exposure in utero to atomic bomb, [Sutow] *1072*—ab
  - burned, pyemia in, Peru, 1145
  - cancer in: liver, [Packard] 974—ab
  - cancer in: neuroblastoma, England, 393
  - *cancer in: thyroid, after irradiation, [Clark]* *1007
  - care in Lincoln and Omaha, Nebraska, (Council Article) *783
  - care of, A.M.A. report, 939
  - child 4½ refuses to feed self, 737; (reply) [Friedman] 1804
  - crippled, clinics for, (Ill.) 128; (Neb.) 1777
  - endothelial myeloma in, India, 1791
  - Hospitals for: See Hospitals, children's
  - mentally deficient, euthanasia advocated, England, 65
  - Michigan research on health and welfare, 1035
  - Model Child Welfare Center, England, 64
  - National Ass'n. for Maternal and Child Welfare conference, England, 141
  - of tuberculous parents, protecting, [Graffar] 723—ab
  - orthopedically handicapped, pediatrician and hospital in care, [Wallace & others) *1607
  - poisoning, accidental: problem, (Council report) [Arena] *1537
  - poisoning: bismuth, fatal cases, [Sterne] 730—ab
  - poisoning: *kerosene, preventing*, [Carithers] *109
  - poisoning: lye, (Council report) [Arena] *1537, 1541—E
  - poisoning: *micrococcic food infection*, England, 803
  - recommend amending protective custody act, England, 1674
  - *retarded, school planned for*, N.Y., 1220
  - school, BCG vaccination, Sweden, 1326
  - school, physique relation to entrance examinations and intelligence, England, 140
  - school, tuberculin testing, 28-year study, [Myers & others] *185
  - separation from parents role in delinquency and disturbances, England, 507
  - shut-in, Calvert correspondence school, Baltimore, 691
  - small, new artificial respiration for, [Rickard] *754; (correction) 1557
  - suicides in, England, 1396
  - telangiectasia progressive in child 5, 536
  - tumor clinic at Yale, 197
  - ulcerative colitis in, [Kirsner] 724—ab
  - vocal palsies in, [Cavanagh] 148—ab
- CHIROPRACTIC: See also Medicolegal Abstracts at end of letter M
  - education, A.M.A. resolution on, report, 928
- CHLORAMPHENICOL (Chloromycetin)
  - analogue, CMA 37, [MacIntosh] 230—ab
  - as axillary deodorant, [Shelley & Cahn] *1736
  - ester plus streptomycin in brucellosis, [Gambusi] 231—ab
  - treatment in large doses for neoplasms, [Krakoff] 526—ab
  - treatment of lung and bronchial infections, [Storti] 730—ab
- CHLORAMPHENICOL—Continued
  - treatment of trachoma using various concentrations, [Mikuni] 229—ab
- CHLORIDES
  - in body fluids in tuberculous meningitis, effect on prognosis, [Marini] 522—ab
- CHLOROETHYLAMINES: See Nitrogen Mustard
- CHLOROMYCETIN: See Chloramphenicol
- CHLOROPHYLL
  - deodorization of advanced cancer, (reply) [Joseph] 70—C
- CHLOROQUINE
  - treatment of lupus erythematosus, [Stoughton] 87—ab
  - treatment of rheumatoid arthritis, [Rinehart] 728—ab
- CHLOROSIS
  - late, with dysphagia, [Kruisinga] 714—ab
- CHLORPROMAZINE
  - effect on brain, Switzerland, 1146
  - effect on glucose tolerance, [Charatan] 144—ab
  - for controlled hypotension, [Matturro] 1567—ab
  - in anesthesia, (England) 142; (for intraocular surgery) [Nutt] 151—ab; (during labor in ex-heroin addict) 410; premedication for laparotomy) [Oljelund] 632—ab
  - international colloquium, 693
  - toxicity: dermatitis, contact, (in nurse) [Campbell] 398—C; (in dentist) [Combes & Reisch] 807—C
  - toxicity: jaundice, [Movitt] 76—ab; [Kohl] 728—ab; [McHardy] 1153—ab; [Stacey] *1160—ab*
  - *treatment, liver function and complications,* [Cohen & Archer] *99
  - treatment of acute alcoholism, [Schultz] 406—ab
  - treatment of causalgia, [Dabbs & Peirce] *1626
  - treatment of hemorrhagic shock [Fertitta] 1796—ab
  - treatment of infantile vomiting, Switzerland, 1147
  - treatment of mental disease, complications of, [Lomas] 83—ab
  - treatment of psychoneuroses, [Silverman] 1490—ab
  - treatment of senile neuropsychic syndromes, [Mars] 816—ab
  - treatment plus cooling in thyroid crisis, [Hunter] 814—ab
  - treatment plus mephenesin in tetanus, [Adriani] 972—ab
  - treatment plus Rauwolfia in neuropsychiatry, [Eiber] 406—ab
- CHLORPROPHENPYRIDAMINE MALEATE
  - to prevent penicillin reactions, [Frankel] 1408—ab
- CHLORQUINALDOL
  - N.N.R., 1204
  - treatment of skin disorders, [Murphy] 87—ab
- CHLORTETRACYCLINE (Aureomycin)
  - to prevent rheumatic fever, [Weinstein] 1163—ab
  - treatment of ornithosis, [Benstz] 1239—ab
  - treatment plus penicillin in E. coli meningitis in infant, [Gordon & Aronow] *1288
- CHLOR-TRIMETON: See Chlorprophenpyridamine Maleate
- CHLORESTEROL
  - In Blood: See Blood
  - low diet in coronary atherosclerosis, [Mor*rison] *1425*
  - metabolism in coronary sclerosis, England, 1046
  - pericarditis, pericardiectomy for, [Creech] *973—ab*
- CHOLE-: See Bile Ducts: Biliary Tract; Gallbladder
- CHOLOGRAFIN: See Iodipamide
- CHONDROMA
  - pure, and chondromatous hamartoma of lung, [Novi] 627—ab
- CHORDOMA
  - roentgen aspects, [Utne] *1419—ab*
- CHOREA
  - senile, and cerebral thrombosis, reserpine for, [Lemmon] 1148—C
  - Sydenham's, amphetamine for, [Masland] 807—C
- CHORIOADENOMA
  - syncytioma malignum, Turkey, 1148
- CHRISTMAS at the A.M.A., 1641
- CHROMIUM
  - sodium radio-chromate (Cr^{51}), N.N.R., 1209
- CHYLE
  - chyliform pleurisy, Turkey, 1147
- CICATRIX
  - rotary abrasive techniques to remove, [Eller] 726—ab; (Committee report) [Rattner & Rein] *1299; 1303—E
- CIGARETTES: See Tobacco
- CIRCUMCISION
  - adult, regional anesthetic for, [Light & others] *31
  - reasons, best age, 1335
- CIRRASOL OD: See Cetyltrimethylammonium Bromide
- CITY/FARM WEEK, A.M.A. participates, 781—E

CIVILIAN DEFENSE
  A.M.A. Council activities, 817; 1640
  civilian doctor and security, [Ravdin] *1109
  federal improvised hospitals, A.M.A. report, 1662
  medical, conference by county societies, 954
  personnel training for improvised hospitals, (N.Y.) 52; (Mich.) 1131
  plan for more blood, [Akeroyd & Crosby] *121
  symposium on, 1319
CLAUDICATION
  intermittent with sympathectomy, [Mavor] 1687—ab
CLIMACTERIC: See also Menopause
  hot flashes, mental lassitude, and impotency in? 91
CLINICS
  proper and ethical use of word, 1254
CLOTHING
  anthrax from goat hair suit linings, [Gold] 1062—ab
  dye from colored socks absorbed through wounds? 736
  for shoulder and knee protection in arthritis, [Rowntree] 214—C
COAL
  gas poisoning, England, 1047
COBALT
  radioactive, for intestinal metaplasia, England, 393
  thyroid function and, [Kriss & others] 708—C; (Armstrong) 1480—C
  treatment of anemia, [Hill] 1678—ab
COCCIDIOIDES
  immitis, mycelial forms in sputum and tissues, [Fiese] 822—ab
  immitis, pulmonary granulomas from, [Alznauer] 150—ab
COCCIDIOIDOMYCOSIS
  disseminated, 2-hydroxystilbamidine for, [Snapper] 1071—ab
  pulmonary, surgery for, [Cotton] 403—ab
COFFEE
  instant and decaffeinated, caffeine in, [Chemical Laboratory article] *250
COGENTIN Methanesulfonate: See Benztropine
COLCHICINE
  blood cholesterol reduced by? 1580
COLD
  abscess, heparin for, France, 1325
  blood pressure response to, in normal and hypertensive people, [Windesheim] 149—ab
  injury, angiologists discuss, Switzerland, 1050
  injury, local; sequelae, [Shafer] 1694—ab
  therapeutic use, effects on vital organs, England, 1474
  therapeutic use for cerebral vascular accidents, Cuba, 802
  therapeutic use for hepatic resection, [Bernhard] 717—ab
  therapeutic use for postpartum hemorrhage, England, 1143
  therapeutic use in anesthesia, 1144
  therapeutic use in surgery, [Lougheed] 406—ab; [Swan] 1242—ab; [Melina] 1488—ab; [Swan] 1796—ab
  therapeutic use plus chlorpromazine in thyroid crisis, [Hunter] 814—ab
  therapeutic use plus transfusion for massive hemorrhage in dogs, [Goffrini] 78—ab
  water, factors in enduring long time immersion, England, 1396
COLITIS
  treatment, hydrocortisone enemas, France, 703
  ulcerative, cancer after, England, 393
  ulcerative (chronic), from pollen allergy, *[Rowe] 1240*—ab
  ulcerative, cortisone for, [Truelove] 1793—ab
  ulcerative, in children, [Kirsner] 724—ab
  ulcerative, minimize risk and disability in, [Dennis] 1688—ab
  ulcerative, psychiatric treatment, [Head] 817—ab
  ulcerative, psychologic processes in, [Engel] 1058—ab
  ulcerative, total colectomy in, [Fallis] 719—ab
  ulcerative, treatment; prognosis, [Fleschl] 401—ab
COLLAGEN DISEASE
  electron microscope study, [Lelli] 231—ab
COLON
  cancer after ulcerative colitis, England, 393
  cancer and polyps, colotomy and coloscopy for, [Deddish] 1691—ab
  cancer, diagnostic survey and follow-up, [Shallow] 816—ab
  megacolon, congenital aganglionic, [Axelrod] 404—ab
  megacolon, rectal biopsy in, [Swenson] 1688—ab
  mucous, [Poppel] 731—ab
  surgery, colectomy *for* cancer, *polyps and* diverticulitis; bowel function after, [Lillehei & Wangensteen] *163
  surgery, colectomy for constipation, Austria, 503
  surgery, colectomy (total) for ulcerative colitis, [Fallis] 719—ab
COLOR
  in environment, effects, [Blumenauer] 1479—C
COLOR BLINDNESS
  Ishihara test, England, 1397
COLOSTOMY
  irrigator, improved, [Weissenberg & Thompson] *1201
  left sided; effects on life span, intestinal *movements* and peristalsis, 1500
COLPOSCOPY
  experimental, [Scheffey] 1245—ab
COLUMNOTOMY
  for unreduced dorsolumbar vertebral fractures with cord lesions, [Renes] 1490—ab
COMPLEMENT
  fixation to determine blastomycosis, 634
  fixation to determine herpes simplex, [Dascomb] 713—ab
COMPLETE SERVICE BUREAU v. San Diego County Medical Society on group medical and hospital service plan [Medicine and the Law] *1460
COMPOCILLIN: See Hydrabamine Penicillin G
COMPOUNDS (listed by numbers)
  17 MER, [Rinaldi] 1799—ab
  37CMA, [MacIntosh] 230—ab
  55 BZ, [Franke; Bertram] 1328—ab
  4112 MC, [Lanzoni] 631—ab
COMPULSORY CASH DISABILITY BENEFITS
  A.M.A. viewpoint, *1017; (resolution) 1767
CONDYLOMA
  acuminatum in female genitals: Podophyllin or fulguration for, 536
CONJUNCTIVA
  melanoma arising in, India, 703
CONSANGUINITY
  genetic risks, Switzerland, 967
CONSTIPATION
  colectomy for, Austria, 503
  yogurt with prune whip for, [Ferrer] 1240—ab
CONSUMERS' PRICE INDEX
  medical care in, 1929-1953, 36-E; (Bureau article) [Dickinson & Raymond] *41; *119
CONTRACEPTION
  contraceptive cap left in position, patient sued physician, England, 702
CONTRACTURE
  Dupuytren's, after isoniazid, [Hines] *1197
CONVULSIONS
  childhood, from rapidly rising temperature, fatal asphyxia from? 1335
  in psychotics, reserpine for, [Barsa] 405—ab
  Therapeutic: See Electric shock treatment; Insulin
COOLEY'S Anemia; Trait: See Leptocytosis, heriditary
COOPERATING Committee on Graduates of Foreign Medical Schools, A.M.A. report, 934
CORONARY SINUS
  arterialization in coronary disease, [Bakst] 518—ab
CORONER
  criticizes hospital staffing, England, 1046
  insist on autopsy if family objects? 1500
  medicolegal office evaluated, autopsy index as comparative standard, [Moritz; Spelman] 1327—C
CORPORA CAVERNOSA
  induration, treatment, 1255
CORPORATION
  donations to hospitals, Better Business Bureau survey, 1742—E
CORTEF: See Hydrocortisone
CORTICAL HYPEROSTOSIS: See Hyperostosis
CORTICOTROPIN (ACTH)
  effect on diphtheria immunity and blood proteins after anatoxin, [Bottone] 1574—ab
  heparin analogies and differences, [De Matteis] 822—ab
  role in surgery, [Abbott] 1572—ab
  treatment, accidents in children after, France, 703
  treatment, hazard in hypercholesteremia, [Adlersberg & others] *1731
  treatment in pediatrics, [Gans] 1068—ab
  treatment of anterior *chest* wall *syndrome,* [Prinzmetal & Massumi] *177
  treatment of asthma, [Fyles] 399—ab; [Vallery-Radot] 711—ab; [Davies] 813—ab; [Kogan] 1568—ab
  treatment of blood disorders, M.R.C. report, England, 1046; [Witts] 1071—ab
  treatment of infectious diseases, [Spink] 1569—ab
  treatment of nephrotic syndrome, [Heymann] 629—ab
  treatment of purpura simplex with Schönlein-Henoch syndrome, [Wald & Kissin] *29
  treatment of scleroderma, [Zion] 1408—ab
  treatment of severe anginose infectious mononucleosis, [Mandel & others] 158: 1021, July 23, 1955; (correction) 159: 132, Sept. 10, 1955
  treatment of syphilis before penicillin, [de Graciansky] 76—ab
  treatment of virus hepatitis, [Heilmeyer] 713—ab
  treatment plus ascorbic acid and adenosinetriphosphoric acid in asthma crises, [Rosa] 72—ab
CORTISONE
  during pregnancy, effect on fetus, Switzerland, 212
  freed for N.H.S. and private patients, England, 1791
  Fludro-: See Fludrocortisone
  Hydro-: See Hydrocortisone
  role in surgery, [Abbott] 1572—ab
  test in adrenal cortex hyperfunction, [Gilsanz] 715—ab
  to diagnose and treat adrenogenital syndrome in children, [Andersen] 1070—ab
  toxicity, anal and tonsillar ulcers, 1499
  toxicity, pleural empyema, 410
  toxicity, renal amyloidosis, Switzerland, 967
  toxicity, tuberculosis, [Lovelock & Stone] (reply) [Israel & others] 69—C; [Oatway] 516—ab
  treatment complications: accidents in children, France, 703
  treatment, hazard in hypercholesteremia, [Adlersberg & others] *1731
  treatment in pediatrics, [Gans] 1068—ab
  treatment (intra-articular and paravertebral) in spine osteoarthritis, [Cohen & others] *1724
  treatment of anterior chest wall syndrome, [Prinzmetal & Massumi] *177
  treatment of apoplectic stroke, [Russek & others] *102
  treatment of arthritis, peripheral vasculature after, [Woodmansey] 1494—ab
  treatment of asthma, [Fyles] 399—ab; [Vallery-Radot] 711—ab; [Davies] 813—ab
  treatment of blood disorders, M.R.C. report, England, 1046; [Witts] 1071—ab
  treatment of bronchitis, Peru, 706
  treatment of horse serum reaction harmful during pregnancy? 634
  treatment of hypertrophic spondylitis? 1256A
  treatment of indurated corpora cavernosa, 1255
  treatment of infantile cortical hyperostosis, [Pounders] 975—ab
  treatment of leukemia, Switzerland, 623
  treatment of metastatic breast cancer, [Pearson & others] *1701
  treatment of nephrotic syndrome, [Heymann] 629—ab
  treatment of tuberculosis with diabetes after chemotherapy failed, Switzerland, 212
  treatment of purpura simplex with Schonlein-Henoch syndrome, [Wald & Kissin] *29
  treatment of rheumatic carditis, 196—E; *[Markowitz] 1069—ab*
  treatment of scleroderma, [Zion] 1408—ab
  treatment of syphilis before penicillin, [de Graciansky] 76—ab
  treatment of thrombopenic purpura after labor, 979
  treatment of ulcerative colitis, [Truelove] 1793—ab
  treatment [illegible] [Heilmeyer] 713—ab; [illegible]
  treatment [illegible], [Schaffner] *1058—ab*
  treatment plus tetracycline and vaccine in brucellosis, [Corelli] 230—ab
  treatment plus tuberculostatics in tuberculous *meningitis,* [Michel] 817—ab
  treatment vs. aspirin in rheumatic diseases, (England) 1047; [Cohen] 1238—ab
CORTRIL: See Hydrocortisone
COUGH
  in differential diagnosis of chest diseases, [Banyai] *1272
COUMADIN: See Warfarin
COWHAGE
  itch powder, active ingredient histamine? England, 65
COWPOX: See Vaccinia
COWS
  tuberculosis control in, Switzerland, 707
COXSACKIE VIRUS
  group B, tissue culture isolation in aseptic meningitis, [Kirby & Evans] *743
  herpangina in Tokyo, [Yokota] 624—C
CRANIUM
  intracranial pressure, peritoneal shunts for, [Jackson] 405—ab
  trauma (closed) of, [Verjaal] 522—ab
  trauma from single injury progressive, 1230
CRIME
  as cause of death, medicolegal office evaluated, *[Moritz; Spelman] 1327—C*
  poisoning suspected, should physician report? 1499
  sex crime prevention study, Oregon, 129
CROMARILE: See 2-Phenylchromone
CROTAMITON
  N.N.R., 851
CRYPTORCHISM: See Testes, undescended
CRYSTALLINE TRYPSIN: See Trypsin
CULDOCENTESIS: See Douglas Pouch
CUNNIFFE, EDWARD R., A.M.A. resolution on illness of, 1768
CURETTAGE
  for plantar warts, [Seale] 228—ab
  hydatiform mole care after, 736
  of vertebral bodies for tuberculosis, [Wilson] 1242—ab
CURLING'S ULCER: See Ulcers

- CUSHING'S SYNDROME
  - clinical and biochemical study, adrenalectomy for, [Decourt] 404—ab
  - fludrocortisone effect on adrenals in, [Cope] 1061—ab
  - surgical treatment, [Cope] 716—ab
- CUTTING OILS
  - in squamous-cell carcinoma etiology, [Mastromatteo; Gilman] 1168—ab
- CYANOCOBALAMIN (vitamin B_{12})
  - European symposium (1st), 1956, Germany, 793
  - in serum in macrocytic anemia, Israel, 1674
  - neurotropic actions on rats, [Becattini] 1414—ab
  - structure elucidated, England, 507
  - *treatment of pernicious anemia, [Reisner]* 1238—ab
  - treatment plus intrinsic factor in pernicious *anemia, [Blackburn] 1071*—ab
- CYANOSIS
  - from nitrogen content of water? 1699
  - in carcinoid of intestine with liver metastases and triscupid stenosis, [Olesen] 222—ab
- CYCLAINE: See Hexylcaine Hydrochloride
- CYCLIZINE HYDROCHLORIDE
  - N.N.R., 1207
- CYCLIZINE LACTATE
  - N.N.R., 1208
- CYSTECTOMY: See Bladder
- CYSTINOSIS
  - [Gatzimos] 1167—ab

D

- DAPT: See 2:4-Diamino-5-phenylthiazole Hydrobromide
- DBED: See Benzathine Penicillin G
- DANILONE: See Phenindione
- DEATH
  - cause not murder 10 months after being stabbed, England, 1564
  - cause of, agranulocytosis in Netherlands, [Salomonson] 821—ab
  - cause of, anuria from phenylbutazone, [Toussaint] 526—ab
  - cause of, autopsy index as comparative standard, [Moritz; Spelman] 1327—C
  - cause of, barbiturate. England, 803
  - cause of, changes, Denmark, 503
  - cause of, contrast media in urography, [Pendergrass] 823—ab
  - cause of, electroshock therapy, [Bliss] 1160—ab
  - cause of, intestinal complications of antibiotic therapy, (England) 66; (Switzerland) 1050: [Thaysen] 1239—ab
  - cause of, penicillin, [Andersen] 1680—ab; (intrathecal overdose, England) 1791
  - cause of, phenacemide, [Craddock] *1437
  - cause of, phenylbutazone, [Mauer] 1248—ab
  - cause of, sodium fluoroacetate, [Brockmann & others] *1529
  - cause of, staphylococcal enteritis, [Todd] 1680—ab
  - *certificates, 1956 revisions, [Dunn]* *1184; 1215—E
  - of Physicians: See list of Deaths at end of letter D
  - Rate: See Vital Statistics
- DEFECATION: See Feces
- DEHYDRATION
  - anatomic lesions in infants dead of toxicosis, [Chaptal] 730—ab
  - hepatosteatosis of toxicosis [Chaptal] 976—ab
  - toxicosis of infancy, Peru, 705
- DELIRIUM Tremens: See Alcoholism
- DEMECOLCIN: See Desacetylmethylcolchicine
- DEMENTIA
  - anesthesia (general) in etiology, in old age, England, 504
  - progressive cortical pathology in, 1230
- DEMENTIA PRECOX: See Schizophrenic Reactions
- DEMEROL: See Meperidine
- DENTISTRY
  - chlorpromazine dermatitis in dentist, [Combes & Reisch] 807—C
  - ruling against dentist for refusing patient, England, 803
  - school, new at Hebrew U., 395
- DEPRESSION: See Mental Depression
- DERMABRASION: See Planing
- DERMATITIS: See also Medicolegal Abstracts at end of letter M
  - bullous, after wearing patent leather shoes, 736
  - following pregnancy, preventing, 1700
  - Industrial: See Industrial *Dermatoses*
  - seborrheic, Vancide-benzethonium for, [Ball] 87—ab
- DERMATOSIS: See Skin disease
  - Industrial: See Industrial Dermatoses
- DESACETYLMETHYLCOLCHICINE
  - *treatment of leukemia,* [Pribilla] 821—ab; [Bousser] 1494—ab
- N-DESACETYLTHIOCOLCHICINE
  - treatment of myeloid leukemia, [Bousser] 1494—ab
- DESENSITIZATION: See Allergy
- DESOXYCORTICOSTERONE
  - treatment plus salicylates in rheumatic diseases, [Schiavetti] 1494—ab
- DESOXYRIBOSE TETRANUCLEOTIDE
  - to treat and prevent leukopenia from x-ray therapy, [Collez] 1250—ab
- DeVRIES, JULIAN, science writer honored by medical society, [Public Relations] *1775
- DEXTROSE: See Glucose
- DIABETES INSIPIDUS
  - *Hand-Schuller-Christian histiocytosis* with, *x-ray for? 93*
  - neurosurgical treatment, [Botterell] 227—ab
- DIABETES MELLITUS
  - adrenal cortex and, Switzerland, 1566
  - complications: amyotrophy, [Garland] 1795—ab
  - complications: degenerative vascular disease, adrenalectomy for, [Headstream] 726—ab
  - complications: glomerulosclerosis, [Lambie] 150—ab
  - complications: hyperthyroidism and cardiopathy in old age, [Alvarez] 1568—ab
  - complications: pituitary abscess: Houssay phenomenon, [Brenner] 1152—ab
  - Complications, Pregnancy: See Pregnancy
  - complications: tuberculosis, Switzerland, 212
  - concept of, [Jackson] 1329—ab
  - detection drive, Ill., 1130
  - diet in, Frederick Sterns and Allen starvation? *92*
  - diet in, fructose in, [Klinger] 401—ab
  - diet unrestricted in infantile type, Switzerland, 1048
  - from renal glycosuria? 1256A
  - Georgia Diabetes Ass'n. established, 128
  - glucagon studies in, [Alivisatos & McCullagh] *1098; (correction) 1467; [Hubble] 1152—ab
  - glycerin as sweetener in, (reply) [Wishnofsky] 980
  - hospital teaching clinic, Mass., 1131
  - in Troell-Junet syndrome, Switzerland, 623
  - incidence, Switzerland, 968
  - incidence in prostate cancer and pancreatitis, [Llamas] 1407—ab
  - insulin, lente, evaluated, [Haunz] *1611; [Slayton] 1683—ab
  - insulin resistance and sensitivity in, [Chiarioni] 1484—ab
  - International Diabetes Federation, 2nd Congress, 802
  - lupine beans cause low blood sugar in? 153
  - management during ketoacidosis, infection and surgery, [Goodman] *831
  - mild, with hyperlipemia and vascular damage, [Adlersberg] 1152—ab
  - mortality rate high, Mich., 1384
  - National Diabetes Ass'n., Denmark, 504
  - severe, hypophysectomy for, England, 803; [Luft] 1243—ab; 1324
  - survey, Chile, 140
  - treatment, new sulfonamide, [Franke; Bertram] 1328—ab
  - Twin Cities Diabetes Ass'n., formed, 1131; (correction) 1388
  - untreated in obese woman, abdominal symptoms in, 233
- DIABETES, RENAL: See Glycosuria, renal
- DIAGNOSIS
  - cerebrospinal fluid study approaching a crisis? [Kafka] 145—ab
  - diagnostic problems, presentation of cases, [Thorpe] *32; (comment) [Elman] *33; [Plimpton & Gambino] *671; (comment) *673; [Kidd] *1739; (comment) [Boggs] *1741
  - doctor of physical medicine in, [Blau] *554
  - hazards in, [Barr] *1452
  - importance in physical medicine, [Schmidt] *1175
  - iodine (protein-bound) in, [Murray] 1154—ab
  - multiple screening, (A.M.A. pamphlet) 38; (A.M.A. Council report) 936
  - radiation dangers in, [Schwarz] 1480—C
- DIALYSIS: See Kidneys, artificial
- 2:4-DIAMINO-5-PHENYLTHIAZOLE HYDROBROMIDE
  - treatment plus morphine in intractable pain, [Shaw] 526—ab
- DIAMOX: See Acetazolamide
- DIAPER
  - sterility in nurseries, (reply) [Sherrill & Kinard] 1478—C
- DIAPHRAGM
  - absence of left one complicating pregnancy and labor, [Williams] 1161—ab
  - eventration (partial) with liver herniation, [Vogl] 400—ab
  - paralysis, idiopathic, [Wense] 145—ab
- DIARRHEA
  - in toxicosis of infants, Peru, 705
  - infantile, Chile, 1395
  - infantile, electrolyte changes in, Brazil, 208
  - infantile, from E. coli O 127 : B8, [Stulberg] 724—ab
  - mucous colon, [Poppel] 731—ab
- DIATHERMY
  - clinical use evaluated, [Martin & Herrick] *1286
  - effect on skin and tissues, 534
  - electrocoagulation of cervical erosion, Austria, 1473
- DIATRIZOATE SODIUM
  - N.N.R., 681
- DIBENZYLINE: See Phenoxybenzamine
- DICHLOREN: See Nitrogen Mustard
- DICUMACYL: See Ethyl Biscoumacetate
- DICUMAROL: See Bishydroxycoumarin
- "DIEGO FACTOR," new red cell factor, Venezuela, *968*
- DIET
  - fat and cholesterol low, protein high, for coronary atherosclerosis, [Morrison] *1425
  - in acne, (A.M.A. Committee report) [Malkinson] *1117
  - in pregnancy, relation to prematurity, [Jeans] 85—ab
  - Infant's: See Infants, feeding
  - modify for obesity, Mexico, 805
  - National Ass'n. for Dietetics and Health established, Norway, 1475
  - Salt-Free: See under Sodium
  - teeth caries relation to, Amazon expedition, 129
  - teeth caries relation to sugar in, 1335
- 2-DIETHYL-AMINO-ETHYL-ISONICOTINAMIDE
  - antiarrhythmic action, [Lanzoni] 631—ab
- DIETHYLENEDIAMINE: See Piperazine Hydrate
- DIETHYLSTILBESTROL
  - treatment of prostate cancer, [Flocks] 1575—ab
- DIGESTIVE SYSTEM: See Gastrointestinal Tract
- DIGITALIS
  - glycosides, ventricular arrhythmias from, [Page] 973—ab
  - lanata, glycosides of, [Testoni] 819—ab
  - treatment, signs of overdigitalization, (reply) [Mark] 1078
- DIHYDROERGOTAMINE
  - treatment of trigeminal neuralgia, [Decker] 83—ab
- DIHYDRAZINOPHTHALAZINE
  - treatment plus Serpasil in hypertension, [Essellier] 1071—ab
- DIIODOHYDROXYQUIN
  - treatment of rheumatoid arthritis, [Rinehart] 728—ab
- DILANTIN: See Diphenylhydantoin Sodium
- DIMENHYDRINATE
  - for postoperative vomiting, [Moore & others] *1342
- DIMERCAPROL
  - treatment of vascular and inflammatory neuropathies, [Romualdi] 83—ab
- 1:4-DIMETHANESULPHONYLOXYBUTANE
  - treatment of leukemia, [Pribilla] 821—ab; [Haut] 1409—ab; [Bousser] 1494—ab
- DIMETHISOQUIN HYDROCHLORIDE
  - N.N.R., 114
  - tests and standards, 1122
- DIODOQUIN: See Diiodohydroxyquin
- DIODRAST: See Iodopyracet
- DIOXYLINE PHOSPHATE
  - coronary vasodilator, long-acting, [Russek] 820—ab
  - treatment of arterial insufficiency, Chile, 1395
- DIPHENYLHYDANTOIN SODIUM
  - toxicity, megaloblastic anemia, [Ryan] 738—ab
  - treatment plus phenobarbital in epilepsy, blood count after, (reply) [Peterman] 980
- DIPHTHERIA
  - ACTH effect on immunization and blood proteins after anatoxin, [Bottone] 1574—ab
  - immune response after vaccination, [Santopadre] 1331—ab
  - immunization combined with whooping cough, (England) 210; (vs. separate inoculations) [Spiller] 1163—ab; (plus tetanus in infants) [Barr] 1163—ab
  - immunization in nurslings, [Jemma] 524—ab
  - morbidity and immunity related to vaccination, [Tosi] 515—ab
  - outbreak, (Ky.) 956; (Ala.) 1553
  - sequel: polyneuritis, Turkey, 968
  - treatment of disease and carriers, erythromycin, [Beach] 1069—ab
- DIPLOPIA
  - monocular, causes, 1336
- DISABILITY
  - allowances by Canadian government, 1788
  - compulsory cash benefits, A.M.A. viewpoint, *1017; (resolution) 1767
  - Industrial: See Industrial Accidents
  - placing rehabilitated patients, [Dawson & Anderson] *557
  - rating, proposed A.M.A. study, 909
  - temporary, A.M.A. report, 941
- DISASTERS
  - Comet aircraft autopsies, England, 62
  - flood in Mexico, U.S. Navy officers commended, 1784
  - Metropolitan Life Insurance Co. report, 200
  - plan for more blood in, [Akeroyd & Crosby] *424
  - psychological reactions, [Caveny] *427
- DISCOVERIES
  - scientific, by medical students, 1214—E

DISEASE
  causes and control, epidemiologist in, 1636—E
  Commission on Chronic Illness Newsletter, report, 1653
  distribution by geography, Israel, 1675
  downward trend of, Ill., 1219
  epidemiology in occupational medicine [Phair] *1105
  Industrial: See Industrial Diseases
  transmission, symposium, London, 132
  use and abuse of medical certificates, (Sweden) 509; (Norway) 1565
DISULFIRAM (Tetraethylthiuram disulfide)
  peptic ulcer affected unfavorably by? 1174
  treatment, electroencephalographic changes, [Pedersen] 628—ab
  treatment of alcoholism, Sweden, 67
DIVERTICULOSIS: See Oviducts
DIVING
  skin diving, medical problems, [Burns] *5
DOCTORS: See Physicians
  Draft Law: See Medical Preparedness
DORIDEN: See α-Ethyl, α-Phenyl Glutarimide
DORSACAINE: See Benoxinate Hydrochloride
DOUGLAS POUCH
  culdocentesis evaluated, [Post] 1692—ab
DRAGHI DETECTION TAMPON
  to detect cervix cancer, [Thornton] *1177
DRAINAGE
  from amputation stump, treatment, 91
  of common bile duct in jaundice, [Strauss & others] *739
  of massive edema, multiple needles for, [Wild] *26
DRAMAMINE: See Dimenhydrinate
DROWNING
  aerosol detergents do not cause, (reply) [Miller] 738
  artificial respiration for, Norway, 1565
  plea for studies on physiology of, 682—E
DRUGS
  addiction conferences at Bellevue Hospital, 690
  addiction in Finland, 1325
DRUGS—Continued
  addiction, National Research Council grants-in-aid, 1470
  "addicts," New Zealanders become, 1145
  adverse reactions, A.M.A. proposes conference, 901
  advertising by mail, England, 66
  brain affected by, Switzerland, 1146
  consumer expenditure, 1929-1953, 36—E; (Bureau article) [Dickinson & Raymond] *41; *119
  evaluation, A.M.A. Council report, 899
  free, for private patients, B.M.A. vs. Minister of Health, England, 61
  houses and postgraduate medical education, A.M.A. resolution on, 929
  indigenous, use in Ayurveda, India, 1398
  injection in brain for psychosis, England, 1789
  manufacture expansion, India, 1791
  new, appraisal; double-blind control evaluated, [Ross] 621—C, 780—E
  nurses want drugs free, England, 1565
  of different actions given together; stomach alter properties? 736
  prescribing under national insurance, Denmark, 1113
  prescription cost under N.H.S., England, 1673
  sample disposal, (hospital in Ecuador) [Estupiñán] 214—C; (through Society of St. Vincent de Paul) [Reiman] 398—C
  toxicity, hazard of diagnosis and therapy, [Barr] *1152
  traffic, illicit, England, 622
  warns of government control, England, 1233
  when not a drug under N.H.S., England, 1789
DRUNKENNESS: See Alcoholism; Medicolegal Abstracts at end of letter M
DRY CLEANING
  industry, solvent hazards [Bourne] 730—ab
DUCTUS ARTERIOSUS
  patent, coarctation of aorta with, [Seaman] 1693—ab
  physiologic closure in the newborn, [Eldridge] 732—ab
  surgical treatment, Peru, 706
DUMPING SYNDROME
  after gastrectomy, (Belgium) 62; [Weiss] 225—ab; [Roberts] 1483—ab; [Capper] 1489—ab
  mechanism and treatment, [Dyk] 74—ab
DUODENUM
  achalasia, Brazil, 1045
  choledochoduodenal obstruction, surgery for, [Preston] *17
  gastroduodenal intussusception, [Mauthe] 731—ab
  granulomatous inflammation, [Richman] 1407—ab
  obstruction, congenital, Norway, 966
  Ulcer: See Peptic Ulcer
DUPONAL
  wetting agent in antibiotic mists; irritation from, (reply) [Miller] 738
DYES
  absorbed through foot wound from socks? 736
DYNAMITE
  headaches from handling, 410
DYSMENORRHEA
  in adolescence, differential diagnosis for lower abdominal pain, 829; (correction) 1557
  paracervical uterine denervation: transect cervical plexus for, [Doyle] 407—ab
  treatment, Fiorinal, [Caldwell] 818—ab
DYSPHAGIA: See Swallowing
DYSPLASIA
  ectodermal, presenting as fever, [Stiles & Weir] 158:1432, Aug. 20, 1955; (correction) 159:615, Oct. 8, 1955
DYSPNEA
  after recurrent myocardial infarction, 1498
  in differential diagnosis of chest diseases, [Banyai] *1272
  in lung fibrosis with emphysema, 1500
DYSTROPHY
  adiposogenital, Mexico, 805
  muscular (progressive), adenosinetriphosphate for? 152
  muscular (progressive), hormones for, [Taselaar] 1414—ab
  muscular, projects, 1387

DEATHS

A

Abbitt, John Willis, 1393
Abrams, Julius Leonard, 206
Abt, Isaac Arthur, 1785
Adams, Herman Galusha, 1320
Adams, James Harlan, 620
Adams, William Alfred, 620
Ahlquist, Richard Elmer, 1471
Aitkens, Herbert Baber, 137
Alava, Petronio, 1672
Albus, William Reuben, 502
Alexander, James Ramsey, 620
Allen, Burton Watson, 1228
Allen, Charles Alexander, 391
Allen, Joseph Lee, 206
Allen, Millard Fillmore, 1228
Alsup, Ace Hill, 1043
Ambrose, Olney Alphonso, 1043
Ames, Azel, 1471
Anderson, Claude, 1139
Arko, Joseph Lawrence, 1139
Arling, Philip Arthur, 1228
Arnoldussen, Chris Philip, 1228
Askew, Rufus Andrew, 206
Atkins, George Hullings, 1140
Auld, Frank Parkinson, 502
Aurand, William Henry, 798
Axelson, Axel U., 1471

B

Backus, Glenn Russell, 1140
Bagwell, Robert Wayne, 798
Bailey, William James, 1672
Bak, Edward William, 1228
Baker, May Davis, 696
Baloch, Ghulam Muhammad Khan, 1388
Balsley, Alfred Wickham, 1043
Barker, Myron Joseph, 1561
Barkoff, Samuel, 137
Barrett, Frederick J., 696
Barstow, William Edwin, 1471
Basile, Charles John, 1140
Battles, Charles Edwin, 1228
Beall, Walter C., 1785
Beard, Joseph Sidney, 206
Beatty, Mary Teresa Veronica Moore, 1228
Beebe, Hugh McDowell, 1471
Beeler, Thomas Taylor Jr., 1785
Belnap, H. Earl, 696
Belt, Leroy Lorin, 1785
Bennett, Coleman Douglas, 1043
Bennett, Francis Paul, 798
Bennion, Percival Hale, 1140
Benson, John Charles Sr., 1471
Bentley, Neil Isaac, 137
Bentley, Roy Leighton, 620
Bernard, C. Henry, 137
Bernecker, Edward Martin, 58
Berner, Frank, 502
Berry, Frederick Aymond, 1393
Berry, George W., 1561
Best, William John, 962
Bethea, William Spinks, 1561
Bibb, James Porter, 798
Bidwell, George Smith, 59
Bitbeck, Albert Franklin, 1561
Bishop, Robert Hamilton Jr., 1320
Bissell, Fred Crawford, 1043
Black, John Fielding James, 962
Blackwelder, Glenn Elvin, 137
Blackwell, George Thomas, 1320
Blair, Arless Arland, 1672
Blanchar, William Otis, 1785
Blanchard, Florence Estelle Crummett, 798
Blaufuss, Armin Louis, 1228
Block, Charles, 620
Block, Siegfried, 1392
Bode, Albert, 962
Boeckmann, Egil, 1471
Boehmer, Arthur Clarence, 1785
Boehning, Harold Henry, 1140
Bohan, Peter Thomas, 1392
Bolin, Herbert Julian, 137
Bonar, Edward Twinem, 1320
Bond, Russell Conwell, 1561
Bonner, Kemp Plummer Battle, 1140
Bopp, Henry William, 502
Bostick, Alonzo E., 1786
Botsford, Charles Porter, 1228
Bove, Rocco, 59
Bowman, Delbert J., 798
Bowser, Harold Curtis, 962
Boyers, Luther Musson, 1227
Brabham, James Charles, 391
Brabham, Vance Wells, 1786
Bram, Israel, 1043
Branom, Le Roy, 1140
Branson, Edward Carl, 1393
Branton, Alloys Franklin, 206
Brewer, John F., 1786
Bridgman, Thomas Francis, 1228
Briscoe, Benjamin E., 798
Brooks, Osceola Judkins, 1786
Brooks, Robert Hartley, 1228
Brower, Charles J., 206
Brown, Berton Milton, 59
Brown, Hugo Otto, 138
Browning, Arthur Wolfe, 1786
Browning, Eugene Shelley, 798
Brunner, Hans, 1393
Bry, Martin Edwin, 1393
Buchanan, Edwin Porter, 697
Buchanan, William Paul, 1786
Buckley, Frederick Herbert, 620
Buikstra, Cyrus Renzo, 1140
Bunshaw, Albert Hudson, 138
Burbacher, Harry Ray, 59
Burke, John Bennett, 1228
Burkhart, Victor H., 138
Burleson, Marvin Wilmer, 962
Burns, Keith Gillies, 1471
Burnside, Isaac Marion, 391
Burrell, Henry J., 206
Burt, Robert T., 1140
Bush, James Allen, 1228
Butler, Edmund William, 206
Butt, Miriam M., 502
Byrd, Edwin Samuel, 59

C

Cadman, Robert Blakemore, 1393
Camp, Raymond Short, 1140
Campana, Vincent Ralph, 59
Campbell, Perry Alfred, 1140
Caples, Byron H., 1393
Capps, Joseph Marshall, 1561
Carey, David Stewart, 206
Carr, Charles Clay, 1320
Carr, Joseph Thompson, 138
Carson, James Green, 798
Carter, Edward Perkins, 206
Carter, Robert Lee, 1228
Cascio, Domenico, 1471
Case, Carl Judd, 1320
Catlett, H. D., 59
Cavanagh, John Leslie, 391
Cavanaugh, Leo Martin, 138
Caylor, Claude Carlisle, 1043
Ceytlin, Benjamin Herman, 1228
Chalstrom, Harry Edward Jr., 962
Chambers, Merritt Goodrich, 1320
Champion, William Leon, 138
Chapin, Charles William, 1393
Charters, John Henry, 1786
Chase, Robert Logan, 1471
Chauss, Jay Manuel, 1228
Cheever, David, 797
Chesley, Albert Justus, 1561
Chesson, Andrew Long, 1228
Chilton, William Ernest, 1471
Chowning, William C., 697
Christman, Paul William, 697
Clark, John Hubert, 502
Clark, Wallace Henderson, 1043
Cleary, Joseph P., 798
Cleaves, Harry Franklin, 1140
Cobb, Donnell Borden, 1786
Cochran, Charles Edgar, 138
Coffee, Henry Daniel, 502
Cogen, Murray, 1561
Coghlan, Jasper, 1393
Coleman, Alfred Tennyson, 1043
Collom, Spencer Allen Jr., 1471
Colt, James Dennison Sr., 1228
Comroe, Julius Hiram Sr., 138
Conahan, Frank Joseph, 1140
Cone, Robert Earl, 962
Constantinides, Charles Lawrence, 1043
Conterman, Frank Beeby, 1140
Conway, Robert Emmett, 59
Cook, Ernest Anderson, 59
Cooper, Irving Joseph, 798
Corbett, Henry Clay, 1786
Cordray, Palmer Lloyd, 1140
Corea, George Thomas, 59
Corey, Giles Patterson, 1471
Corlett, Thomas Gardiner, 391
Cornell, Joseph H., 1140
Cornthwaite, Miles J., 1140
Corry, John A., 206
Corwin, Charles T., 1228
Coutts, Gordon Shelswell, 1561
Cowden, Arthur McCluney, 206
Coyle, Bruce James, 1320
Crabtree, Peter, 1140
Crawford, Edward Aiken, 1043
Creekmur, Roger Lee, 1228
Crisp, Sellers Mark, 1228
Cross, James Bailey, 1392
Crossland, Stewart Harrold, 962
Crouch, John Baker, 1393
Crutcher, Lewis Pinkerton, 59
Crutchfield, Pinkney Herman, 1393
Culp, Earle E., 1228
Culver, George Albert, 391
Culver, Wesley Youngs, 1392
Cunnane, Thomas Bartholomew, 620
Curtis, Arthur Hale, 1785

D

Dando, George H., 697
Daniele, Joseph Americo, 206
Daniels, Lewis Ernest, 1042
Darby, John Charles, 206
David, James Carleton, 502
Davidson, Carlton Harold, 1786
Davidson, Herman Porter, 1228
Davis, Henry Levi, 1140
Davis, John Thomas, 59
Dean, Frank Wilson, 206
de Boe, Michael Price, 206
De Fuccio, Charles Pasquale, 1320
Dehoney, Howard, 59
De Moully, Oliver Martin, 1472
Denison, Charles Milton, 59
Denman, Peyton Roland, 1140
Dennen, Joseph Horace, 59
Dennison, John Chase, 1228
Denton, Marvin, 1786
Dessloch, John C., 1043
Deuterman, Joel LeRoy, 206
Dew, Roderick, 207
Dewees, Jacob Highley, 138
Dewey, Fred Norton, 59
De Wolfe, Daniel Charles, 1043
Dick, Noble, 1321
Dickens, William Mason, 620
Dillard, James Albert, 798
Di Pasquale, Stephen Gaspar, 697

Donelson, Kater, 1561
Donovan, Roscoe P., 59
Dooley, Emmett Alfred, 1227
Dougan, Archie Longshore, 1321
Downing, Richard Ray, 1786
Draney, Thomas Leo, 962
Drant, Patricia Hart, 1393
Drew, John Almus, 1561
Drinkwater, Ray Lawrence, 1786
Du Bois, Franklin Thomas, 391
Duckwall, Fred M., 1561
Duckworth, Milton, 697
Dufty, George Watson, 1472
Dulligan, Peter James, 1042
Duncan, Isaac Greenwood, 697
Dunn, Charles Hunter, 207
Du Puls, John Gordon, 1228
Durkee, John Watson, 1393
Dwyer, John Robert, 1140

E

Earl, William Henry, 1140
Eaton, William Edward, 1785
Edahl, Edwin Waldamar, 798
Edmunds, Fred Andrew, 207
Edrington, Nicholas Kuntz, 1321
Edwards, Francis Main, 1321
Edwards, Robert William, 207
Eliscu, Frederick, 620
Ellis, William Wesley, 1140
Elmer, Florence Dudley Greaves, 138
Emery, Walter Vanalystyne, 207
Erni, Harry Edward, 1043
Evans, Morris, 502
Evans, Thomas Jr., 1472

F

Farrell, Chalmers Gregg, 1562
Farrell, John Hogan, 60
Fawcett, George Gifford, 1043
Feaman, Albert Cole, 60
Fein, Maxwell Janeway, 137
Feldman, Harry, 1043
Feldman, Samuel Hyman, 620
Ferguson, Joseph Hart, 1786
File, Richard Cushing, 1139
Finney, Margaret Hammond, 1786
Firfer, Bourke, 1321
Fischer, Charles, 620
Fischer, Nathaniel Arthur, 1321
Fitz, Frederick William, 1227
Fitzsimmons, Elvin Lee, 1228
Flagg, Winthrop Maillot, 58
Flagge, Philip Wesley, 1786
Fletcher, Asa E., 1393
Flint, Austin, 58
Flynn, James Lawrence, 1321
Fodder, William Lewis, 1321
Forbes, David Arthur, 1472
Ford, Walter Ari, 138
Ford, Walter David, 1321
Foster, Eli Norman, 1472
Foster, Thomas Jefferson, 1140
Freda, Leonard Aloysious, 1228
Frederickson, John Wardell, 1140
Freydberg, Max, 1321
Frick, Donald Jackson, 962
Frickman, Oscar A., 60
Friedman, Arnold Leo, 137
Friedman, Harry Jacob, 1393
Friedman, Jack, 1562
Frieman, Hyman A., 1043
Frost, Edward Harold, 391
Fry, Clements Collard, 1672
Fuller, Gaillard Botchford, 962

G

Gade, Carl Johannes, 60
Gale, Clinton Fifield, 1321
Gallaher, David Mars, 1228
Gama, Pablo Jose, 1140
Gardner, Joseph Leonard, 1141
Garfield, Herman Joseph, 1562
Garnier, Anna M., 502
Gaster, Emil, 1229
Gastineau, Felix Thomas, 59
Gates, Arthur Marion, 391
Gengenbach, Franklin Paul, 1042
George, John Henry, 620
Gerberich, Guy A., 1321
Gerns, Theodore, 1141
Gerry, Frank Henry, 1472
Gilbert, Robert Bacon, 1043
Gillespie, Julian Mason, 798
Gillespie, Noel Alexander, 797
Gladman, Everett Aldrich, 1321
Glatter, Zoltan, 60
Goff, Milton Guy, 697
Goldberg, Sidney, 138
Goldman, A. Milton, 1042
Goldstone, Walter, 1472
Goodloe, Aareiel Ellis, 502
Goodwin, Loranza Dow, 1043
Gould, William B., 207
Graham-Rogers, Charles T., 1229
Gray, Howard Kramer, 1139
Greaves, Horatio Norman, 391
Green, David Wright, 59
Green, William L. Sr., 138
Greer, Neil E., 798
Griffiths, Albert Farnsworth, 207
Grimes, James Thomas, 1321
Grindle, J. Lowell, 207
Grinnell, Wendell B., 138
Grisier, Otto Woodson, 1141
Guild, Carl Holmes Sr., 1141
Guild, Frederick Washburn, 1786
Gummey, Frank Bird, 1321
Gute, Edwin Bertram, 1321

H

Haas, Reynold Lavelle, 1044
Haedenkamp, Karl, 1388
Haggerty, Daniel Leo, 1393
Hall, Chester Garfield, 207
Hall, Ea[illegible] Stanley, 1393
Hall, Gil[illegible]t Hoke, 1141
Hall, Philip Vought, 697
Halsey, Robert Hurtin, 1227
Hamil, James Young, 60
Hamilton, William Franklin, 1141
Hammel, Seth A., 138
Hammer, Howard John, 207
Hammond, Walter Jean, 1472
Hanson, Clarence B., 207
Harms, Albert Oscar, 207
Harrington, Richard, 138
Harris, Bunn, 60
Harris, Gracchus Crawford Jr., 207
Harris, Sigel Clance, 1141
Hartt, Percy Perley, 1786
Hathaway, Robert Joseph, 1229
Havel, Harold William, 502
Haverly, Norman James, 58
Hayman, Charles Stanley, 1472
Haynes, Halbert Andrew, 697
Head, William Herbert Jr., 962
Heaney, Noble Sproat, 1392
Hecht, Max, 620
Held, Louis Arthur, 1229
Henderson, Abby May, 697
Henes, Edwin Jr., 138
Henry, Tully Lee, 391
Hess, Julius Hays, 1227
Hess, Peter William, 798
Hibbard, Burt, 138
Higinbotham, Charles John, 1786
Hill, Garland Withers, 1229
Hilton, Walter Scott, 391
Hines, Brainard Evans, 1229
Hinshaw, Sylvester Ellsworth, 60
Hixson, Arthur Handley, 1786
Hoff, Einar, 1562
Hogans, Sterling Franklin, 1786
Hoge, Myrvin Eugene, 1229
Hohn, Fred Julius, 1786
Holden, William Burroughs, 1562
Holleb, Herbert Bernard, 1043
Hollinshead, Theodore Highbee, 138
Holmes, Alfred Wellwood, 798
Holmes, Colin McLean, 1229
Holmes, Fred Gooding, 962
Holmes, Fred Weber, 1044
Holmes, John Franklin, 798
Holt, Lloyd Mott, 962
Honigsberg, Leo, 798
Hood, William Andrew, 1472
Hooper, Joel Samuels, 1786
Hopkins, Thomas Andrews, 1393
Horder, Thomas Jeeves, 55
Horning, William H., 1229
Horsfall, Frank Lappin, 1044
Horton, Logan Warren, 138
Hougland, Walter Louveria, 1044
Howard, Charles Earl, 1044
Howell, Robert, 798
Hunt, Preston, 60
Hunter, Rush Quinn, 1321
Hutchins, Eugene Leslie, 1321
Hyde, Charles Wilbur, 963

I

Irvin, John Shepherd, 1044
Irwin, George Allan Lyall, 60
Isaacs, George W., 502
Iseri, Kawor, 138

J

Jack, John Barnes, 1562
Jackson, Ransome Otha, 138
Jackson, Walter B., 60
Jacobson, Conrad, 1139
Jacobson, Julian C., 60
James, Frederick Weiss, 138
Jardini, Alessandro S., 60
Jefferies, Charles A., 60
Jeffers, Dean Henry, 1786
Jerrell, Paul Mahlon, 1393
Johnson, Frank Bruce, 502
Johnson, George Frederick, 391
Johnson, Hubert Hatch, 502
Johnson, John Birger Albert, 138
Johnston, Lawrence Walton, 138
Johnstone, Alexander Anthony, 1229
Jones, Charles Bonham, 697

K

Kacso, Ladislaus, 502
Kagan, Solomon R., 696
Kahn, Isidor Nathan, 798
Kaley, Clifford Matthew, 138
Kaluza, Ernst Karl, 620
Kasboum, William J., 1229
Kauffman, William Allen, 697
Keating, Charles Albert, 138
Keating, Charles V., 1229
Keefe, George Gregory, 207
Keene, Ralph Kendall, 1562
Keim, William W., 1321
Kelley, George Myatt, 1044
Kelley, John Bernard, 1042
Kelly, Blair, 1141
Kelly, Raymond Martin, 60
Kelsey, Joel Smith Jr., 1044
Keneipp, Edgar Percy, 697
Kennedy, Robert Walden, 1229
Kenyon, Paul E., 1229
Kerr, James Purdy, 1229
Key, John Albert, 696
Keyser, Carl Shurz, 697
Kibler, Francis Elmo, 207
Kiess, John Simeon, 1044
Kincaid, Robert Lee, 1141
Kirgan, Joseph William, 207
Kitchin, Thurman D., 797
Klaptoz, Adalbert, 391
Klein, Benjamin D., 1321
Knowlton, Florence Emerson Honey, 60
Knutson, Olaf A., 1472
Koefoot, Theodore Henry, 207
Koons, Robert Ottens, 1562
Kornbluh, Ignatius, 798
Kowalski, Henry John, 137
Krakowski, Joseph, 51
Kramer, Henry Frederick, 1141
Kramer, Sidney David, 962
Krell, Solomon, 1139
Kretzmer, Eugene, 391

L

Lacy, Joseph Barkley, 1141
Ladas, Harilaos Elia, 502
La Fond, Dolor Joseph Arthur, 207
Lambert, Joseph S., 391
Lampson, Edward Rutledge, 60
Landham, Jackson Wiley, 697
Landon, Herbert William, 1562
Lanford, Walter Bozeman, 1044
Lang, Dorothy Mary, 1141
Lang, William Peter, 207
Latte, David, 1321
Laws, Harry John, 207
Lawson, Lawrence Wells, 1562
Lazarus, Benjamin, 798
Leake, Norman Augustus, 138
Le Doux, Morris Stirling, 1472
Leech, Frank McConnell, 963
Lefkin, Philip, 1044
Lehmann, Theodore Alexander, 1562
Leighton, Isaac Wellman, 798
Lemberg, Leon, 798
Lendrum, Birney Alexander, 1786
Lester, David Howard R., 138
Lester, Harry Sumner, 697
Leuty, Joseph David, 207
Levick, Julius Ernest, 1141
Levinson, Abraham, 1139
Leviton, Nathan David, 502
Lewis, George Vincent, 1786
Libert, John Nicholas, 1393
Lightstone, Abraham, 697
Little, George Reed, 697
Lombardo, Theodore Roosevelt, 60
Lomnitz, Friedrich Walter, 1321
Londrigan, Joseph Francis II, 697
Long, James U., 1044
Long, Thomas Henry, 1044
Longenecker, Charles Willard, 697
Longsdorf, Harold E., 1044
Lorenz, Thomas Holt, 137
Love, Thomas Stafford, 60
Low-Beer, Bertram V. A., 1141
Lowder, Lillian Crockett, 1321
Lowry, Henry Lawrence, 502
Lucas, Peter Joseph, 1229
Luce, Henry Ashley, 1471
Lutterloh, Isaac H. Sr., 798
Lutton, Ethelbert Arnold, 1229
Lynch, Russell Earl, 1141
Lyon, James Alexander, 797
Lyon, James Ira, 60
Lyon, William Edwin, 620

M

McBee, Thomas Judson, 1786
McBroom, David Edward, 1392
McCandlish, Howard Sheild, 1139
McCann, Eugene John, 1472
MacCarthy, Francis Hamilton, 963
McCarthy, James Matthew, 798
McCarthy, Ralph Rowland, 798
McCarver, William C., 697
McClellan, P. T., 391
McClintock, John Thomas, 1393
McCorkle, William Pyles, 798
McCown, Percy Edward, 1141
McCoy, John C., 1141
MacCracken, S. Gordon, 1321
McCradie, Andrew Ross, 1044
MacDougall, Walter Hope, 207
McElroy, John Walter, 1044
McFarland, Samuel Byrd, 1141
McGinnis, John Simpson, 963
McGrail, Matthew Augustine, 697
McGrath, Maurice James, 138
MacGregor, Mary Elizabeth Childs, 1562
McGuffie, Charles Robert, 1141
MacGuire, Daniel Philip, 59
McIntyre, Douglas, 697
Mackie, Thomas Turlay, 1320
McLaughlin, James Arthur, 963
McMenamin, Thomas Daniel, 58
McNaugher, Samuel, 1141
McNeeley, Hugh Lyle, 1472
McNeil, Irving, 963
Maercklein, Ivan Rudolph, 502
Magee, Hosea Frank, 1562
Maguire, Richard Aloysius, 1472
Malcomson, Joseph Emmett, 58
Maloney, Arnold Hamilton, 697
Mamlet, Alfred Moses, 963
Mandelbaum, George Murray, 207
Manson, Richard Hawes, 697
Mantz, Eli Sylvester, 1786
Martin, John Franklin, 620
Mason, David Adams, 697
May, James Virgil, 59
Meacham, Hubert Franklin, 697
Meagher, John Ignatius, 698
Meeker, William Raymond, 137
Mendelsohn, Jacob James, 1042
Meriwether, Lodwick Sterrett, 1393
Merkel, George Albert, 60
Merriam, Gordon, 1562
Mershon, Glenn Earl, 1472
Merwin, Edgar Garfield, 1321
Meschter, Eugene F., 1044
Metcalf, Henry Martyn, 1472
Meyer, Nathan Nissau, 1786
Meyers, Jerome, 1141
Michie, Winston Thomas, 798
Miksch, Carl Edward, 963
Miley, Weir Mitchell, 798
Miller, Charles Melbourne, 1786
Miller, Daniel Burton, 1786
Miller, Victor Davis, 1321
Miller, William John, 698
Miltenberger, Val E., 60
Miltimore, Edward, 1141
Mitchell, Frank Baxter, 798
Mitchell, James Archie, 1786
Mitchell, John Ira, 1044
Mitchell, William Francis, 963
Mitchell, William James, 391
Moennighoff, Fritz Joseph, 1141
Moerke, Robert Frank, 1393
Monash, David, 1787
Moncure, Philip St. Leger, 1561
Moon, Arthur Ernest, 799
Moore, Edward Joseph, 1787
Moore, John Morgan, 1141
Moore, Loyal Hamilton, 1393
Moore, Mary Teresa Veronica. See Beatty, Mary Teresa Veronica Moore
Moriarty, Patrick Maurice, 1042
Morris, William Francis, 799
Mudge, Murray Fairbanks, 799
Muldoon, Wilfrid Edward, 1393
Mullen, Lawrence George, 1394
Mulligan, Raymond Francis, 1787
Mulvey, William Aloysius, 1562
Murphy, Lawrence, 1472
Mutter, Alfred Aloysius, 1141
Myers, Dean Wentworth, 59
Myers, Harry Edwin, 1322

N

Nassar, Naif Easa, 698
Neblett, Herbert Clarence, 1042
Nelson, Frederick Lawrence, 1229
Nelson, John Alfred, 963
Nelson, Leo Arthur, 1141
Nelson, Roland Clifford, 1787
Neuwelt, Frank, 207
Newell, Horatio Whitman, 1392
Nicholson, John Henry, 698
Niell, Arthur Harry, 1141
Nifong, Frank Gosney, 962
Niles, Charles Milton, 1394
Nipple, Frederic E., 1141
Noe, Philip R., 1394
Norrel, John W., 698
Norris, Edgar Hughes, 1562
Nowak, Stanley Alfred, 1141
Nowicki, Joseph Aloisius, 1142
Nunnally, William Ord, 1142
Nuzum, John Weston Jr., 391

O

O'Connor, Roderic Patrick, 799
O'Dea, Patrick John, 391
O'Dell, Thomas Allen, 1787
O'Donnell, George Thomas, 1394
O'Gorman, Michael William, 1787

Ohrwall, Harold William Augustus, 1787
Oliver, Hudson Jones Jr., 1142
Olson, Ole Hansteen, 1394
Onstine, Warner Abram, 1142
Opitz, John Hoff, 1322
Osborn, Howard A., 60
Osburn, John Nelson Neill, 1787
Outlaw, Jackson Kent, 1472
Outler, James Samuel, 1787
Overton, Marvin Cartmell Sr., 1142
Owen, Hubley Raborg, 1320
Owen, James Alexander, 698
Owsley, Robert Wright, 502

P

Page, Claude Weston, 1142
Palmer, Paul Whitney, 1562
Palmer, Theodore Sherman, 206
Pargen, Thomas Houston, 60
Parker, James William, 207
Pattengill, Morrell, 1394
Pattison, Jean Harwood, 698
Pavlides, Theodosios Demetrios Kh[illegible] 698
[illegible]
[illegible]
Peck, Robert Ellsworth, 1142
Perkins, Ralph Sherburne, 1394
Perry, Benjamin, 698
Perry, Seth Bridgman, 60
Perusse, George Louis, 60
Peters, Arthur Louis, 620
Peters, Edgar, 698
Peterson, Carl Melancton, 620
Peterson, Clark Kimball, 1787
Petit, William Daugherty, 1394
Petry, Franklin, 391
Petty, Clarence Sibley, 1322
Petty, Lester Edwin, 207
Phelan, Emma, 1142
Phelps, Marcus, 620
Phillips, Samuel Hewes, 1787
Phillips, William Linton, 1043
Pieper, Henry G., 799
Pierce, Eugene Bennett, 963
Pierce, Franklin Duane, 1142
Pillsbury, Henry Church, 797
Place, Philip Wilfred, 502
Pohly, Albert G., 391
Pond, Bernard Wesley, 60
Porter, John McGill, 797
Porter, William Clare, 1392
Post, John James, 1139
Post, Samuel James, 1394
Powell, Daniel Drury, 61
Prescott, Harry V., 963
Presson, Virgil Guy, 1672
Price, Byron Sprague, 1322
Pritchard, George Littleton, 1787
Puris, Abram Martin, 1322
Purtle, Christopher Columbus, 799

R

Ramsey, Wayne Stevenson, 1672
Randall, George Merrill, 1787
Randel, Henry Andreas, 696
Rankin, Edward P., 963
Rawers, Clarence Bernard, 963
Rawson, Elwin Gilbert, 1322
Raycroft, Joseph Edward, 1392
Reagan, Charles Harold, 502
Reckefus, Charles Halwadt Jr., 1142
Reckord, Frank Frederick Dunott, 58
Reed, James Ross, 799
Reedy, Walter Marion, 502
Reese, George Washington, 963
Reinsch, Frank, 61
Renn, Carl Grover, 963
Renshaw, John B., 61
Reynolds, Edna Marguerite, 1392
Reynolds, John Andrew, 61
Rice, Herbert R., 1787
Richards, Joseph Francis, 1142
Ridgway, Eldo T., 1394
Rimson, Oscar, 1394
Robbins, Agnes Louise, 61
Roberts, William Humes, 1142
Robertson, Arthur Edward, 799
Robinson, Edward Jerome, 1322
Robinson, James Lee, 1142
Rochester, Gertrude, 1472
Rochman, Robert, 1562
Rosander, Phyllis, 799
Rose, James Madison, 61
Rosenberg, Harry, 1322
Rosenblate, Adolph Jacob, See Rosenblate, Adolph Jan
Rosenblate, Adolph Jan, 1322
Rosenthal, Julius Mordecai, 61
Ross, Floyd Freeland, 61
Rosser, Robert Guthrie, 207
Roth, Norman, 1322
Rowe, Mary Virginia Copeland, 61
Royse, James G., 1562
Rubbra-Morris, Jean Olive, 391
Rubenstein, Louis G., 799
Rucks, William Ward, 61
Ruddick, Hobart Conway, 698
Ruff, Adolph, 1142
Russell, Eldon Leo, 698
Russell, Walter Adams, 1043

S

Samuel, Jacob, 1044
Sanborn, Harvey B., 1130
Sand, Herman, 963
Sanders, Samuel Robert, 502
Sanders, William A., 1142
Sandroni, Dino, 1322
Sauer, David Eric, 1394
Sauer, John George, 963
Sauer, William Emil, 1042
Saunders, Griffin Augustus, 61
Sawyer, Charles Douglas, 58
Schantz, Henry Franklin, 1394
Scheffel, Carl, 207
Schillander, Carl Axel, 1394
Schipfer, Lloyd Albert, 1322
Schlesman, Charles Harry, 698
Schmidt, William Francis, 61
Schmit, Felix, 698
Schneider, Elias, 698
Scholpp, Sylvan Strong, 58
Schultz, J. William, 799
Schurgot, James Adam, 1394
Schutz, Leopold, 1229
Scott, Elmer Albert, 1787
Scruton, Foster David, 391
Seely, Richard Henry, 61
Segal, Myer, 1142
Self, William Osce, 1394
Seljeskog, Sigsbee Raymond, 963
Sell, Oliver Martin, 1322
Senger, William, 1392
Senor, Samuel David, 1142
Seropian, Kegham, 1044
Sewall, Chester Durbin, 1044
Shabat, Louis Willard, 1322
Shannon, James Herbert, 1142
Shaul, Frederick Gersham, 1229
Shaw, Arthur Briggs, 797
Shaw, Thomas Bond, 1044
Sheffield, Homer H., 1787
Shepherd, Ford, 206
Shipley, Arthur Marriott, 1561
Shipley, James Everett, 1787
Shreck, John Addison, 1229
Shuler, Ashley Cooper, 1562
Shurtz, Richard Charles, 207
Siefert, Carl Fred, 698
Siekerman, Clairmont William, 61
Sifritt, Neuman, 1472
Silver, Gershon Benjamin, 963
Silverman, Harry Zeleck, 1322
Simpson, Leo Francis, 1471
Skaggs, Henry C., 963
Skwirsky, Joseph, 1229
Slabotsky, Samuel, 1394
Slaughter, Emma Elizabeth Young, 1044
Slavin, Francis James, 1322
Sleeter, Robert William, 61
Small, Frederick Rieth, 799
Smallwood, Walter Charles, 1787
Smith, French Nestor, 1322
Smith, James Washington, 1561
Smith, James Westphal Barnum, 1322
Smith, Leonard Higbie, 1394
Smith, Lucius Ernest, 1044
Smith, William Douglas, 1787
Snead, Nash P., 620
Snearly, George Earl, 1142
Solomon, Charles, 1042
Sopher, Curtis Levi, 1394
Sostek, Samuel Bertram, 61
Souders, John Cloyd, 1142
Speidel, Frederick W., 1472
Sprinkle, Davis Lee, 1142
Stanley, Francis Guy, 1142
Stark, Charles Vernon, 799
Stein, Louis Arthur, [illegible]
Stephens, George Henry, 1322
Stern, Nathan, 391
Stevens, Delos Meeker, 1322
Stevens, James Henry, 1787
Stevenson, Eber Fortner, 799
Stevenson, James, 963
Steward, Rebecca Viola Ditzler, 1394
Stockler, Jules, 1562
Stone, Alvin Alexander, 1472
Stone, Lee Alexander, 1787
Stone, Merlin Jones, 962
Stone, Theodore Croft, 1472
Storer, Elroy Templin, 1044
Stork, A. Robert, 799
Stoutamire, Fred A., 799
Straw, Zatae Longsdorf, 1322
Streeter, Frederick B., 799
Strong, Robert Alexander, 696
Summers, James Arthur, 61
Supple, William Raymond, 1142
Susnow, David Abram, 1042
Sutherland, Edward Alexander, 58
Swift, Robert Howard, 799
Switzer, John Franklin, 799

T

Talbot, Robert Emmett, 207
Tate, Wendell Maurice, 502
Taylor, Benjamin F., 1787
Taylor, Eugene Arthur, 620
Taylor, Frederick Raymond, 1562
Taylor, Malcolm Cushing, 696
Templin, Oscar Elsworth, 963
Terrell, Earley Thomas Jr., 698
Theobalds, John Anthony, 1562
Thompson, Clarence George, 620
Thompson, William Albert, 799
Thompson, William Graham, 799
Thornton, Ross Cook Blakeney, 698
Tibbels, Charles David, 1787
Tillottson, Squire Fountain, 1472
Tingdale, A. Carlyle, 1322
Tippet, Walter P., 1472
Todd, Lawrence Newton, 1322
Tolle, Charles Banta, 1472
Tomlinson, Carlton Hagg, 698
Tompkins, Archibald, 61
Toney, Sherwood M., 1394
Torell, Gerhard John, 1044
Torrance, Adam Morton, 1472
Torrey, John Paine, 1322
Tracy, Elizabeth Roberts Cahoon, 61
Trader, Charles Bell, 502
Treister, Bert Allen, 1229
Trice, Ernest T., 1322
Trimble, William Hugh, 698
Troolen, Peter O., 799
Troutman, Holmes Fielding, 799
True, MaBelle, 391
Turnbull, Samuel Jay, 1043
Turner, Edmond Daniel, 1229
Turner, Kenneth Burlen, 1394

U

Uloth, Milton J., 1562
Ussher, Clarence D., 1322

V

Vaccari, Zeferino, 1394
Vandeman, Adelbert N., 502
Van Kirk, Asher W., 1472
Vardy, Philip L., 1394
Varner, Winter Thomas, 698
Vaughan, James Maurice, 1142
Verberkmoes, John Martin, 1044
Verdeschi, Felix L., 1394
Vernon, James William, 1227
Vertuno, Louis Abbott, 1472
Vloedman, Derk Andrew, 1394
Voislawsky, Van Rensselaer, 799

W

Wade, Charles Benjamin, 963
Wadsworth, Harvey Bryan, 1562
Wagner, Earl Calvin, 1394
Wahrhaftig, Myer Jacob, 1787
Walker, Arthur Bruce, 61
Walker, Arthur Wellington, 799
Walker, John Keasbey, 61
Wall, John Alexander, 799
Wallin, Mathilda K., 1142
Wallingford, William H., 61
Walsh, Edward Francis, 698
Walter, Ralph Somers, 1394
Walter, Will, 1229
Warner, Earl Albert, 1562
Watkins, Benjamin F., 61
Watson, Joseph W., 1044
Weeks, Paul Richard, 1322
Weidlein, Floyd Henry, 1142
Weiner, Samuel Isaac, 391
Welch, Gilford Nelson, 1394
Wenzinger, Harold John, 799
Werner, Robert George, 1044
Westcott, Leo Enos, 1787
Westervelt, J. C., 1787
Wheeling, William Stuart, 1322
Whitaker, William Jerry, 799
White, James R., 391
White, Thomas Watson, 61
Whitehill, James Lorrin, 1229
Wilcox, Clarence Robert, 1142
Wilkinson, Stella Lucy, 799
Williams, Frederic Darbey, 1322
Williams, Harry George, 698
Williams, Horatio Burt, 1672
Williams, J. Maxwell, 1787
Williams, John Thomas, 1227
Williams, Louis A., 502
Willis, John Buren, 1472
Willits, Paul Winter, 59
Wilson, Benjamin Ralph, 207
Wilson, Edmund Winfred, 698
Wilson, Fred Bailey, 1672
Wilson, Wirt B., 1562
Wolfer, John Adams, 1672
Wolff, Maurice Wolkowitz, 698
Wonka, Warren Joseph, 698
Wood, George H., 1472
Wood, Harold Austin, 963
Wood, Joseph Benjamin, 61
Wood, William Patton, 1142
Woodall, John Burleson, 1142
Woolley, Talmage Oliver, 1322
Wright, Daniel Paul, 61
Wright, John Alexander, 1142
Wynkoop, James Cartright, 502

Y

Yarian, Norman Carey, 391
Yaskin, Joseph Charles, 696
Yates, Joseph Earnest, 207
Yeisley, Carl Jay, 1142

Z

Zavin, William Herman, 1320
Zipser, Max Armand, 1562

E

EDTA: See Edathamil Calcium-Disodium
EAR
  atresia of meatus, when and how treat? 737
  infection, antibiotic specificity, [Goldstein] 1417—ab
  otitis externa treatment, [Tremble] 148—ab
ECCENTRO-OSTEOCHONDRODYSPLASIA
  congenital, Turkey, 707
ECHINOCOCCOSIS
  of thyroid with goiter, [Logaldo] 1684—ab
ECLAMPSIA
  fractures from, medicolegal implications, [Reinberger] 85—ab
  preeclampsia and, in etiology of hypertension, [Schreier & others] *105
  preeclamptic toxemia, hypotension for, [de Alvarez] 522—ab
  treatment by continuous conduction analgesia, [Bryce-Smith] 227—ab
ECONOMICS, MEDICAL
  A.M.A. Bureau activities, 924
ECONOMICS, MEDICAL—Continued
  A.M.A. resolution on continuing Commission on Economic Policy, 1751
  aspects of social security, W.M.A. discusses, 1020—E; [Knutson] *1054
  B.M.A. requests monthly N.H.S. checks, England, 66
  doctor-draft vs. adequate pay for career doctors, (President's Page) 1304
  hourly-rate fees, [Business Practice] [Porterfield & Marks] *215
  medical and hospital costs, [Problem Corner] *1775
  position of medical care, 1929-1953, 36—E; (Bureau article) [Dickinson & Raymond] *41; *119
  problems in education, practice and fees, (President Hess' page) 380
  proprietary drugs, England, 1398
  Sears-Roebuck Foundation loans to establish new practices, 37—E; 38
  7 years of N.H.S., England, 1323
ECTODERMAL DEFECT
  dysplasia presenting as fever, [Stiles & Weir] 158:1432, Aug. 20, 1955; (correction) 159:615, Oct. 8, 1955
ECZEMA
  photoallergic, Switzerland, 212
  problem of, [Bookman] *1275
  treatment, placental tissue in nursling [Santyan y Velasco] 1416—ab
EDATHAMIL (Ethylenediamine-Tetraacetic Acid)
  lead sodium, radiographic use, England, 621
EDATHAMIL CALCIUM-DISODIUM
  N.N.R., 850
  treatment of lead poisoning, [Zambano] 229—ab
EDEMA
  after Rauwolfia, [Perera] *439
  angioneurotic, latest treatment, 735
  cardiac, with arteriosclerosis; acetazolamide for, Denmark, 503
  idiopathic, from sodium retention with hyper*aldosteronuria, Switzerland, 212*
  macular, with retinitis, 3rd episode; tonsillectomy advised? 1424

EDEMA—Continued
  massive, drainage using multiple needles, [Wild] *26
  of penis from rubber urinals, 1424
  sodium retention and venous pressures relation, [Goldman] 1419—ab
EDUCATION
  aid plan by Eastman Kodak, 1223
  general, medical education looks at, [Irons] *537
  needed to prevent accidental poisoning in children, (Council report) [Arena] *1537
  of public in mental health, [Braceland] *1187
EDUCATION, MEDICAL
  A.M.A. resolution on federal subsidy for, 1766
  American Medical Education Foundation: See Foundations
  background for general practice and specialization, 609—E
  changes recommended in Great Britain, 208
  curriculum, anesthesiology, [Betcher & others] *766; (needs in) [Sappenfield] *1435
  curriculum, legal medicine, [Levinson] *1718
  curriculum, mental deficiency should be stressed, England, 66
  curriculum, racecourse or planned program? 610—E
  curriculum studies, 578
  economic problems of, (President Hess' page) 380
  Financial Support: See Schools, Medical
  for industrial physicians, 1742—E
  graduate, A.M.A. Council report, 930
  in Norway, 966
  in Spain, 1146
  in U.S. and Canada, 55th annual report by A.M.A. Council, *563; 607—E
  looks at general education, [Irons] *537
  national defense and, current status, *592
  Number, Oct. 8, 1955, page 563
  partnership in teaching, 608—E
  postgraduate, and drug houses, A.M.A. resolution on, 929
  postgraduate, medical schools in, *595; *596; *600
  postgraduate programs for general practitioner, *599
  postgraduate, survey, A.M.A. report, 934
  postgraduate, Tennessee Medical Ass'n. revises system, 386
  Preprofessional: See also Basic Sciences
  preprofessional requirements and attainments of entering class, *586; *587
  problems of specialization, especially internal *medicine,* [Cooksey] 1052—C
  regional programs in, *573
  teaching pathology in U.S. and Sweden compared, 509
EFFUSIONS
  serous, of neoplasms, nitrogen mustard for, [Weisberger & *others*] *1704
EISENMENGER COMPLEX
  [Brown] 710—ab
  dynamics, [Kohout] 1059—ab
ELBOW
  extension supracondylar fractures in children, immobilization of, [Wright] 1574—ab
ELECTRIC
  fulguration for condyloma acuminatum, 536
  instruments, selenium poisoning from rectifiers? 1255
  pacemaker for heart arrest and block, [Rose & Wartonick] *1015; [Zoll & others] *1428; [Zoll] 1681—ab
  shock treatment, cardiac arrest after, (replies) [Davis; Brofman] 536
  shock treatment, death after, [Bliss] 1160—ab
  shock treatment with reserpine, dangers of, [Foster & Gayle] *1520
  stable heart, surgery for coronary disease, (color plates) [Beck & Leighninger] *1264
  stimulate scalp to activate electroencephalogram, [Gozzano] 1244—ab
ELECTROCARDIOGRAM: See Heart
ELECTROCOAGULATION: See Diathermy
ELECTROCORTINE: See Aldosterone
ELECTROENCEPHALOGRAPHY: See Brain
ELECTROLYTES
  changes in infantile diarrhea, Brazil, 208
  extracellular hyperosmolarity after cerebral lesions, [Anthonisen] 83—ab
  in burn treatment, [Artz & Soroff] *411
  metabolism, prednisone and prednisolone effect on, [Spies & others] *645
ELECTRONICS
  flash attachment to take pictures in operating *rooms?* 152
  tonometer, [Ascher] 808—C
ELECTRORETINOGRAPHY: See Retina
EMBOLISM
  after gynecologic surgery, [Soergel] 523—ab
  air, from skin diving, [Burns] *5
  cerebral, cortisone for, [Russek & others] *102
  mesenteric, (*Diagnostic Problems*) [Plimpton & Gambino] *671; (comment) *673
  prognostic significance in mitral stenosis after surgery, [Actis-Dato] 1571—ab
EMBOLISM—Continued
  pulmonary, [Krause] 399—ab; (Sintrom for) [Moeschlin] 408—ab; [Hussey] 1057—ab
  systemic, relation to mitral valvotomy, [Belcher] 1686—ab
EMOTIONS
  disturbances after separating children from parents, England, 507
  disturbances in pancreatic disease, [Berk] *1079
  in mass casualties, [Caveny] *427
EMPHYSEMA
  after thorax injuries, [Blades] *419
  localized, surgery for, [Weisel] 519—ab
  pulmonary, prednisone for, [Bickerman] 1166—ab
  treatment of lung fibrosis with, 1500
EMPYEMA
  pleural, after prolonged cortisone for arthritis, 410
ENCEPHALITIS
  acute hemorrhagic and tuberculous, 1230
  measles, gamma globulin to prevent and treat, [Greenberg] 146—ab
  mumps, pathology; pathogenesis, [Donohue] 1330—ab
  outbreaks in U.S., 1037
  rubella, [Schleisner; Jorgensen] 1066—ab
ENDOCARDITIS
  bacterial (acute), after mumps, 633
  bacterial (subacute), intravenous erythromycin for, [Bishop & others] *1730
  bacterial (subacute), with aneurysm of aortic sinus and coarctation of aorta, [Steinberg] 1329—ab
  lenta (Osler's), erythromycin cures after other antibiotics fail, [Lambert] 220—ab
  streptococcal, penicillin and streptomycin for, [Hall] 220—ab
ENDOCARDIUM
  fibroelastosis, [St. John] 724—ab
ENDOMETRIOSIS
  of navel, [Merchante] 1068—ab
  of ovaries, estrogens after surgery for? 1580
  surgical treatment, conservative, [Whitehouse] 227—ab
ENDOMETRIUM
  cancer, treatment problems, [Sadler] 523—ab
  estrogen and/or chorionic hormone effects on, Peru, 1233
  hostile cervical mucus causes sterility, 93
  tumors: adenocarcinoma, prognosis and therapy, [Webb] 522—ab
ENDOSCOPY
  peroral, local anesthesia for, [Adler] *111
ENEMA
  effect on cecum and colon peristalsis in left-*sided colostomy, 1500*
  hydrocortisone, for colitis, France, 703
  increased pressure of, simulating megarectum, [Giordana] 969—C
ENGEL AND SCOTT TECHNIC
  glucose-insulin tolerance test, [Houli & Povoa] *561
ENTERAMINE: See 5-Hydroxytryptamine
ENTERITIS; ENTEROCOLITIS: See Intestines inflammation
ENTEROBIASIS: See Oxyuriasis
ENURESIS: See *Urine, incontinence*
EOSINOPHILS
  adrenocortical activity measured by, [Hoffer] 1496—ab
  in venous, vs. capillary blood, 1699
  prednisone and prednisolone effects on, [Spies & others] *645
EPIDEMIOLOGY
  epidemiologist in disease causes and control, 1636—E
  epidemiologist in reducing illness and its cost, England, 804
  in occupational medicine, [Phair] *1105
  of cancer in U.S., [Heller & others] *1628
EPIGLOTTIS
  abscess, diagnosis, [Raim & others] *1289
EPILATION: See Hair removal
EPILEPSY
  A.M.A. resolution on change in legal status of epileptics, 1662
  employment of epileptics, England, 63
  idiopathic, in pregnancy, [McClure] 721—ab
  in children, cyclic vomiting as form of, [Millichap] 86—ab
  latent, in tension, [Liddell] 226—ab
  mitral disease and, [Lusiani] 514—ab
  state survey initiated, Wis., 1466
  surgical treatment results, [Penfield] 1414—ab
  tarda: clinical analysis, [Müller] 628—ab
  temporal lobe, possible from tentorial herniation, 1230
  treatment, phenacemide fatal in, [Craddock] *1437
  treatment, phenobarbital and Dilantin; blood count after, (reply) [Peterman] 980
  treatment, Serpasil; electroencephalogram before and after, [Colombati] 720—ab
  treatment, vitamin B_6, (Council report) [Vilter] *1210
EPINEPHRINE: See also Arterenol
  procaine hydrochloride with, for anesthesia in adult circumcision, [Light & others] *31
EPISTAXIS: See Nose, hemorrhage
ERASOL: See Nitrogen Mustard
ERUCTATION
  of hydrogen sulfide possible from gastrocolic or duodenocolic fistula, (replies) [Schaefer; Wilhelm] 1580
ERYSIPELAS
  recurrent in boy with enlarged tonsils and bad teeth, 1173
ERYTHEMA
  fleeting patches, etiology; treatment, 1255
  Multiforme: See Stevens-Johnson Disease
ERYTHROBLASTOSIS, FETAL: See Hemolytic Disease of Fetus and Newborn
ERYTHROCIN: See Erythromycin
ERYTHROCYTES
  autosensitization causes purpura with bruising in women, [Gardner] 712—ab
  formation, effect of plasma of inhabitants of *high altitudes on,* Peru, 1146
  glycolysis in hemolytic disease, [Hollingsworth] 231—ab
  isotope-labelled, to demonstrate incompatibility, [Mollison] 528—ab
  Sedimentation: See Blood sedimentation
  transfused, survival before and after surgery, [Cortese] 1061—ab
ERYTHROMYCIN
  ethyl carbonate, tests and standards, 1123
  glucoheptonate, tests and standards, 1456
  lactobionate, tests and standards, 1123
  ophthalmic use, N.N.R., 1635
  stearate, tests and standards, 1457
  treatment (intravenous) of subacute bacterial endocarditis, [Bishop & others] *1730
  treatment of amebic hepatitis, [Nelson] 1570—ab
  treatment of brucellosis, [Urteaga] 1493—ab
  treatment of diphtheria and carriers, [Beach] 1069—ab
  treatment of Osler's endocarditis, [Lambert] 220—ab
ERYTHROPOIESIS: See Erythrocytes
ESCHERICHIA
  coli meningitis in infant, [Gordon & Aronow] **1288*
  coli O 127:Bs, infantile diarrhea from, [Stulberg] 724—ab
  coli to determine vitamin B_{12} in serum, Israel, *1674*
ESOMID: See Hexamethonium
ESOPHAGITIS
  scientific exhibit, [Schmidt & others] follows *1256*
ESPHAGOSCOPY
  optical, clinical and radiological correlations, [Stemplen & others] *22
ESOPHAGUS
  atresia, congenital, Chile, 1395
  cancer, exfoliative cytology to diagnose; 2 cases with cardiospasm, [Klayman] 400—ab
  cancer, surgery for, [Wu] 1062—ab
  cancer, treatment, [Dogliotti] 1689—ab
  diverticulum (Zenker), lung disease after, [Hawes] 973—ab
  gastric mucosa in, [Morris] 1412—ab
  megaesophagus, (surgery for) [Effler] 1571—ab; 1743—E
  rupture, spontaneous, [Starkey] 1158—ab; 1541—E
  rupture, traumatic, [Overstreet] 814—ab
  varices, bleeding, after splenectomy, [Hallenbeck] 1571—ab
  varices, bleeding, (Belgium) 139; (balloon tamponade diagnosis) 484—E; (reply) [Bixby] 1480—C
  varices, bleeding; surgery for, [Linton] 78—ab
  varices; causes other than cirrhosis and portal block, [Palmer] 1238—ab
  varices in portal hypertension, sclerosing injections for, [Macbeth] 1572—ab
  varices, management in cirrhosis without hemorrhage, [Brick] *1688—ab*
  varices, x-ray and esophagoscopic findings, *[Kirsh] 1072—ab*
  washings, cytology, [Johnson] 1576—ab
ESTROGENS: See also Diethylstilbestrol
  contraindicated after surgery for endometriosis of ovary? 1580
  deficiency in psychotic woman; artificial menopause for? 930
  deficiency, predispose to coronary disease? 738
  effect on corpus carcinoma, [Husslein] 1800—ab
  effect on endometrium, ovary, and after castration in rats, Peru, 1233
  effect on testes in prostate cancer, Austria, 699
  leukocyte resistance increased by, in pregnancy, Switzerland, 1477
  menstruation delayed by, Austria, 392
  to control epistaxis and hemorrhage after adenoidectomy, [Menger] *546; [Gertner] 1401—C
  treatment of acne, (A.M.A. Committee report) [Malkinson] *1117; (guest editorial by Dr. Rothman) 1124—E
  treatment of hot flashes and sweats after loss of testes, 535
  treatment of metastatic breast cancer, [Pearson & *others*] **1701*
  treatment of pregnancy in diabetics, M.R.C. report, England, 1563; [Reid] 1692—ab

GRAAFIAN FOLLICLE
  fluid, heparin-like action, [Vecchietti] 722—ab
GRADUATES
  Foreign: See Physicians, foreign
  medical, in U.S. and Canada, 1954-1955, *586
  medical, what happens to? A.M.A. study, *590
  of approved medical schools in U.S., *589
  of unapproved schools, Joint Commission approve hospital staff membership for? 684
GRANULOMA
  chronic nonspecific, of stomach, duodenum and intestine, [Richman] 1407—ab
  pulmonary (focalized), from coccidioides immitis, [Aiznauer] 150—ab
GRAVES' Disease: See Goiter, Toxic
GREASE
  grease gun injuries to hand; eye or penis ever involved? 1498
GREENLAND
  British expedition to study aspects of arctic exploration, 1230
GRIEVANCE Committee: See Societies, Medical
GYNECOLOGY
  British Congress, (14th) report, 505
  exclude from straight internship, A.M.A. resolution on, 929; (Council report) 1749
  hormonal therapy in, [Hall] 1245—ab
  international union founded, 793
  placental tissue implantation (Filatow method) in, [Holkup] 1068—ab
  surgical, appendectomy during, Sweden, 1326
  surgical, thrombosis and embolism after; anticoagulants for, [Röttger; Soergel] 523—ab

H

HADASSAH Medical School: See Hebrew University
HAEDENKAMP, KARL, death of, Germany, 1388
HAIR
  removal from fall-out radiation in Marshall Islands, [Cronkite & others] *430
HALITOSIS
  fetor hepaticus; description, dry mouth with? *634*
HAMARTOMA
  chondromatous, of lung, [Novi] 627—ab
HAMMAN-RICH SYNDROME
  [Sloper] 1155—ab
HAND
  disease, painful non-arthritic, [Toone] 1484—ab
  injuries from grease gun, 1498
  numb at night, differential diagnosis, 1077
  [illegible]: See Shoulder
HANDICAPPED
  [illegible] atrician and hos- [illegible] & others] *1607
  industrial employment at home, 1133
  rehabilitation of, 1540—E
  swimmers manual by American Red Cross, 692
HEAD
  cancer (advanced), chlorophyll deodorization, (reply) [Joseph] 70—C
  injuries in automobile accidents; prevention, [Shelden] *981
  surgery, carotid-artery ligation in, [Moore] 720—ab
HEADACHE
  etiology: carbon dioxide, 1802
  etiology: nitroglycerin contact, 410; 1077
  vascular, arterenol for, [Ostfeld] 970—ab
HEALTH
  Britain's, annual report, 1231
  care, social security in, W.M.A. discusses, 1020—E; [Knutson] *1054
  center, CIO clothing workers, 1463
  center, experimental, Manchester, England, 700
  center for old people in Scotland, 505
  center in Huntington, dedicated, W. Va., 1466
  center, India's first urban one, 1791
  center, Model Child Welfare, England, 64
  centers, management and union, A.M.A. revised booklet, 940; 1765
  centers, Nuffield, England, 1473
  counseling and personality problems, school conference discusses, 1125—E; 1126
  education, A.M.A. Bureau Activities, 921
  federal spending on, 1021—E; 1023
  in armed services, England, 505
  in Western Europe, improved, 1467
  Industrial: See Industrial Health
  Information Foundation public opinion survey on medical services, A.M.A. cooperates, 885
  Insurance: See Insurance, sickness
  Ministry of, England, (vs. B.M.A. on free drugs for private patients) 64; (annual report) 1231; (to warn physicians of meperidine addiction) 1233
  Ministry of, Peru, nutritional guide for mothers, 509
  national ass'n. for dietetics and, established, Norway, 1475
  National Health Service: See National Health Service
  of animals, effects on man, Switzerland, 1048
  of older people, Norway, 1475
HEALTH—Continued
  officer role in international vaccination, 852—E; [Miller] 1478—C
  officers, physicians as, Sweden, 1326
  Pan American long-range programs, 810
  public, Pan American officials meeting, 810
  public, physician in occupational problems, [Warren] *1581
  public, report, Hawaii, 53
  public, statistics, Peru, 509
  responsibilities, Tennessee Woman's Auxiliary school contest, [Public Relations] *1381
  Rural: See Rural Communities
  School Conference on Health Problems, 1125—E; 1126
  services in Scotland, 506
  tips for TV audiences, A.M.A. films, 118
  USPHS grants, (in hypertension and cancer research) 129; (educational values) *575; *576; *577 (for nursing research) 619
  USPHS, 1956 standard birth and death certificates, [Dunn] *1184; 1215—E
  USPHS, Salk vaccine reports, 136; 796; 1011; [Bodian & others] *1444; [Anderson] *1522
  USPHS supplement on immunization for international travel, 136
  World Health Organization: See World Health Organization
HEART
  Anomalies: See also Ductus Arteriosus; Heart disease (congenital)
  anomalies, closing atrioventricular canal, [Kirklin] 1796—ab
  anomalies, closing interatrial septal defect during hypothermia, [Swan] 1796—ab
  anomalies, closing ventricular septal defects, [Lillehei] 1329—ab; [Kay] 1486—ab
  anomalies, in infants, [Bruins] 723—ab
  anomalies: interventricular septal defect in boy 11; acute bacterial endocarditis after *mumps*, 633
  anomalies, surgery for atrial defects, [Watkins] 1487—ab
  anomalies: tetralogy and pentalogy of Fallot; surgery for, [Lillehei] 1241—ab
  anomalies: tetralogy of Fallot in infants and *children*, [Rowe] 407—ab
  anomalies: tetralogy of Fallot; surgical results, [Potts & others] *95; (Peru) 706
  arrest after electric shock treatment, (replies) [Davis; Brofman] 536
  arrest, external electric pacemaker for, [Zoll & others] *1428; [Zoll] 1681—ab
  arrest, recovery after massage, [Eckmann] 814—ab; [Fair] 1063—ab
  auscultation, venous hum in, [Groom & *others*] *639
  ballistocardiogram in angina pectoris, [Smith] 811—ab
  block (*Stokes-Adams*), external electric stimulation for, [Rose & Wartonick] *1015; [Zoll & others] *1428; [Zoll] 1681—ab
  cancer, atrial fibrillation in, [Joselevich] 970—ab
  disease (congenital) in infants, catheterization and angiography to diagnose, [Boesen] 524—ab
  disease (congenital), surgery for, [Grossi] 518—ab
  disease (cyanotic congenital), in Eisenmenger complex, [Brown] 710—ab
  disease, employment of patient, England, 701
  disease, in infants, [Bruins] 723—ab
  disease, lipoid organ extracts in, [Ferrarini] 1154—ab
  disease, rehabilitation, England, 1232
  disease relation to work, 1223; (Iowa farm study) 1665
  disease (rheumatic) after penicillin for scarlet fever, [Weinstein] 514—ab
  disease, (rheumatic), Aschoff body in, [Tedeschi] 1576—ab
  disease (rheumatic), C-reactive protein not correlate with Aschoff bodies, [Elster] 1684—ab
  disease (rheumatic), cardiopericardiomyopexy for, 158: 1459, Aug. 20, 1955; (correction) [Gorelik] 159: 708, Oct. 15, 1955.
  disease (rheumatic) complicating Cooley's trait in oriental Jews, 395; (correction) 1316
  disease (rheumatic) in auricular appendages, [Clark] 1496—ab
  disease (rheumatic), origin of cardiac giant cells, [Wagner] 1576—ab
  disease with circulatory failure, digitalis glycosides for, [Testoni] 819—ab
  edema with arteriosclerosis, acetazolamide for, Denmark, 503
  electrocardiogram in angina pectoris, [Smith] 811—ab
  electrocardiogram in induced hypotension, 1144
  electrocardiogram, staff physicians interpret on their own patients? 684
  hypothermia of, [Melina] 1488—ab
  Infarction: See Myocardium
  inflammation (rheumatic), cortisone and hydrocortisone for, [Markowitz] 1069—ab
  inflammation (rheumatic) with congestive heart failure, cortisone in, 196—E
HEART—Continued
  insufficiency (congestive failure) after Rauwolfia, [Perera] *439
  insufficiency (congestive failure) effect on pulsus alternans, [Ryan] 970—ab
  insufficiency (congestive failure), I^{131} for, [Jaffe & others] *434
  insufficiency (congestive failure) in coronary thrombosis with myocardial infarction, [Wood & others] *635
  insufficiency (congestive failure) in rheumatic carditis, cortisone for, 196—E
  insufficiency (congestive failure), vena cava ligation in, [Bernath] 80—ab
  insufficiency (failure) in newborn, pulmonary hyaline membrane as sign, [Lendrum] 976—ab
  insufficiency (failure), total circulating sodium in, [Leevy & Donovan] *771
  insufficiency, oleander combination for, [Bär] 819—ab
  insufficiency, sodium retention and venous pressures in edema of, [Goldman] 1419—ab
  murmurs (innocent), diagnosis in children, [Rhodes] 1068—ab
  muscle extract for multiple sclerosis, [Wilder] 1799—ab
  output greater when fiber is long, Italy, 1326
  pathology, diabetes, and hyperthyroidism in old age, [Alvarez] 1568—ab
  revascularization in coronary artery disease after circumflex artery ligation, [Bakst] 518—ab
  rupture of interventricular septum, [Malone] 1682—ab
  Surgery: See also Aortic Valve; Heart, anomalies; Heart, disease; Mitral Valve; Pulmonary Valve
  surgery, cardiopericardiomyopexy in angina pectoris and rheumatic heart disease, 158: 1459, Aug. 20, 1955; (correction) [Gorelik] 159: 708, Oct. 15, 1955,
  ventricular contraction premature after Rauwolfia, [Wilson & Wimberley] *1363
  Wolff-Parkinson-White syndrome, Austria, 503
  work classification unit, Fla., 1777
HEAT
  stroke in mental defectives, [Steinzeig] 975—ab
  Therapeutic Use: See also Diathermy
  therapeutic use, microwaves and infrared, [Martin & Herrick] *1286
HEBREW UNIVERSITY
  dentistry school organized, 395
  Hadassah Medical School, (family health course; WHO Regional Poliomyelitis Lab. at; new psychiatric ward) 395; (medical center building plans) 613; (enrollment increased) 705
HEDULIN: See Phenindione
HEIN, F. V., president-elect of American School Health Association, 1747
HELICOPTERS: See Aviation
HELMETS
  crash, B.M.A. views on compulsory use by motorcyclists, England, 65
HEMANGIOMA
  capillary, of skin, [Modlin] 520—ab
  cerebral, Turkey, 623
  giant, and thrombocytopenia in infants, [Good] 1161—ab
  treatment, especially irradiation, [Pfahler] 1694—ab
HEMATOLOGY: See Blood
HEMATOMA
  intracerebral, in the young and middle-aged; treatment, [Miller] 975—ab
  Subdural: See Meninges
HEMATURIA
  complication of renal aspiration biopsy, [Schwiebinger & Hodges] *1198
  in prognosis of congenital renal polycystic disease, [*Simon & Thompson*] *657
HEMIPLEGIA
  after mitral surgery, carotid exploration for, [Boyd] *112
  infantile spastic, [Perlstein] 145—ab; (scientific exhibit) [Perlstein & others] follows 738
  International Research Council for, 1780
  treatment, inject procaine into stellate ganglion, India, 1398
HEMISPHERECTOMY: See Brain surgery
HEMOCHROMATOSIS
  treatment, repeated venesection, [Davis] 1063—ab
HEMOGLOBIN
  C, sickle cell disease in siblings, [Scott] 629—ab
  in gastric carcinoma before and after surgery, [*Fretheim*] 519—ab
  standardization study, *Ill.*, 1310
  standards differ in infants, adults, and pregnant women? 1174
HEMOGLOBINURIA
  after [illegible], Switzerland, 1051
  [illegible] [Dean] 517—ab
HEMOLYSIS
  during transfusion from hr^{1} (c) factor, [Yahn] 1411—ab
  erythrocyte glycolysis in, [Hollingsworth] 231—ab

HEMOLYTIC DISEASE OF FETUS AND NEWBORN
  as cause of perinatal mortality, [Gold] *244
  from A-B-O incompatibility, chances of similar child? 234
  hemorrhage after massive transfusions for, [Krevans & Jackson] *171; [Hyman] 1480—C
  in infant of Rh negative parents; explanation? 1256
HEMOPHILIA
  pediatric review, [Weihl] 1492—ab
HEMOPTYSIS
  massive, not from tuberculosis or neoplasm, [Ehrenhaft] 1158—ab
HEMORRHAGE
  after adenoidectomy, estrogens for, [Menger] *546; [Gertner] 1401—C
  after anorectal surgery, [Anderson & others] *9
  after anticoagulants, vitamin K for, [Wood & others] *635; (reply) [Howell] 1401—C
  after massive whole blood transfusions, [Krevans & Jackson] *171; [Hyman] 1480—C
  after thorax injuries, [Blades] *419
  epidemic hemorrhagic fever, [Speers] 713—ab
  massive, hypothermia with transfusions for, in dogs, [Goffrini] 78—ab
  shock with, Largactil for, [Fertitta] 1796—ab
HEMOTHORAX
  after thorax injuries, [Blades] *419
HEPARIN
  ACTH analogies and differences, [De Matteis] 822—ab
  action of follicular fluid, [Vecchietti] 722—ab
  toxicity, allergy, [Massone] 1249—ab
  treatment, nonhemorrhagic accidents in, [Mathieu] 820—ab
  treatment of angina, [Kory] 728—ab
  treatment of cold abscess, France, 1325
  type recommend after thrombosis, 1803
HEPATITIS, INFECTIOUS (epidemic jaundice)
  acute, ad lib. bed rest and early reconditioning for, [Chalmers & others] *1431
  etiology: Salk vaccine by single-syringe-multiple-needle? (reply) [Eisenstaedt] 1500
  in Chile, 140
  in Haderslev, Denmark, [Krogh] 1570—ab
  liver decompression by common bile duct drainage in, [Strauss & others] *739
  transmitted by boiled syringe? 1078
  treatment, blood irradiation, [Olney] 1063—ab
  treatment, cortisone, [Heilmeyer] 713—ab; [Siegenthaler] 1793—ab
HEPTABARBITAL
  N.N.R., 1208
HEREDITY: See also Families
  amaurotic idiocy, Switzerland, 1050
  chance for intussusception to occur in child after 2 of 5 children had it, 153
  neurinomas and meningiomas combined, [Davidoff] 628—ab
  porphyria, [Dean] 712—ab
  purpura simplex with Schönlein-Henoch syndrome, [Wald & Kissin] *29
  radiological genetic hazards, (Belgium) 139; (England) 507; [Schwarz] 1480—C
  risks of consanguinity, Switzerland, 967
  role in dental caries, 1335
HERNIA
  diaphragmatic (congenital) of liver, [Vogl] 400—ab
  hiatus, differentiated from angina pectoris, [Schmid] 1793—ab
  hiatus, hemorrhage from; diagnosis, Belgium, 139
  inguinal, herniorrhaphy as outpatient procedure, England, 1324
  inguinal, surgery during pregnancy, 1256A
  sliding; cause, diagnosis, treatment, 534
  tantalum, steel wire or nylon mesh to repair, [Petrina] 1798—ab
  umbilical, with endometriosis, [Merchante] 1068—ab
HEROIN: See under Morphine
HERPANGINA
  outbreak in Tokyo, [Yokota] 624—C
HERPES
  simplex, serologic study, [Dascomb] 713—ab
  zoster, chickenpox vesicle fluid for, India, 1399
  zoster, hydrocortisone for, [Marshall] 1161—ab
HEXACHLOROPHENE
  limit to preoperative skin use, N.N.R., 1635
HEXAMETHONIUM
  bitartrate effect on labor, [Boscaro] 722—ab
  salts with veratrum alkaloids in hypertension, [Brunner] 729—ab
  toxicity fatal, [Rønnov-Jessen] 74—ab
  treatment plus hydralazine in hypertension, [Rast] 1156—ab
  treatment plus Rauwolfia in hypertension, [Dennis] 1406—ab
HEXYLCAINE HYDROCHLORIDE
  in local anesthesia in peroral endoscopy, [Adler] *111
HIBERNATION, Artificial: See Cold, therapeutic use; Narcosis
HIBERNOMA: See Lipoma, fetal fat cell
HILL-Burton Act: See Hospitals
HIRSCHSPRUNG'S Disease: See Colon, megacolon
HISTAMINE
  itching factor in cowhage? England, 65
HISTOPLASMIN
  reactors, chronic lung disease in, [White] 1060—ab
HISTOPLASMOSIS
  epidemic in N. C., [Parrot] 1685—ab
  in Italy, 1144
  pulmonary, [Puckett] 403—ab
HISTORY
  gentle art of poisoning, especially by Jews, [Leibowitz] 397—C
HOBBIES: See Physicians, avocations
HODGKIN'S DISEASE
  treatment, nitrogen mustard, England, 393
  treatment TEM, [Hambly] 527—ab; [Høst] 1576—ab
HOME
  accidents, statistics, N. Z., 1565
  A.M.A. symposium on health hazards of chemicals in, 38
  cooperation with school needed for health, 1125—E; 1126
  therapy for arthritics in Wisconsin, 130
  tuberculous houses are a myth, England, 966
HOOKWORM Infection: See Ancylostomiasis
HOOVER, HERBERT (1874-)
  excerpts from birthday address, *214
  Lahey award to, (photo) 1217
HOOVER REPORT
  booklet on how to write congressmen, 1021—E
HORDER, THOMAS JEEVES, 1st baron (1871-1955)
  death of, 55; 506
HORMONES
  chorionic, effects on endometrium, ovary and after castration in rats, Peru, 1233
  follicular, effect on corpus carcinoma, [Husslein] 1800—ab
  treatment in gynecology, [Hall] 1245—ab
  treatment of breast cancer, [Grinberg] 1495—ab
  treatment of muscular dystrophy, [Taselaar] 1414—ab
HORSE SERUM: See Serum
HOSPITALS: See also Medicolegal Abstracts at end of letter M
  Accreditation: See also Joint Committee on Accreditation of Hospitals
  accreditation, cancer registry necessary for? 685
  administration, inter-American seminar, 509
  American Hospital Ass'n. building plans, 1384
  autopsy rates in, *255; *256
  bed in lumbar traction, [Judovich] *549
  beds, too few in parts of London, 1047
  Bellevue, new poliomyelitis ward, N.Y., 1666
  births in, increasing in U.S., 1021—E
  bureaucracy, B.M.A. criticizes, England, 1232
  care of orthopedically handicapped child, [Wallace & others] *1607
  children in, pamphlet for parents, England, 804
  children (preschool) admissions, England, 506
  children's, Uganda and England liaison, 508
  civil defense-improvised, (personnel training) 52; 1131; (A.M.A. report) 1662
  Contributory Schemes Ass'n. show voluntary contributions necessary, England, 1673
  control, internships by type, *252; *253
  corporate giving to, 1742—E
  cost and time spent on alcoholics, England, 1674
  critical care unit, Hartford Foundation grant for, R.I., 1313
  doctor of physical medicine as diagnostician, [Blau] *554
  general practitioner, in Northern Ireland, 1563
  general practitioners, A.M.A. resolutions on recognizing, 1767
  general practitioners' right to work in, England, 66
  general (private) A.M.A. resolution on opposing Joint Commission on courtesy staff memberships, 1765
  Hadassah U., new psychiatric ward, 395
  Hammersmith, 50th anniversary, England, 65
  Hill-Burton construction act, A.M.A. report, 936
  in Ecuador, drug samples for [Estupiñán] 214—C
  in London, epidemic similar to infectious mononucleosis, 700; 966
  in New Brunswick, expansion, N.J., 1665
  infant deaths in; causes, Brazil, 964
  insist on autopsy if family objects? 1500
  inspection and summary, A.M.A. report, 933
  Interns; Internships: See Interns and Internships
  Kernan (James Lawrence), rehabilitation center, Md., 1665
  Lennox Hill, development, N.Y., 1666
  liability for negligence of laboratory technician, [Medicine and the Law] *1380
  magnetic call system, England, 1325
  Massachusetts Memorial, (centennial Nov. 21) 1220; (services for paraplegics) 1665
  Medical College, in Charleston, S. C., opened, (photo) 1221
HOSPITALS—Continued
  Montreal General, psychiatric night treatment; new building, 1563
  New Providence, building fund, D.C., 1219
  nonprofit, surplus foods available, [Snyder] 1676—C
  nu from E. coli in,
  nu diapers, (reply) [Sherrill & Kinard] 1478—C
  Olmsted Community completed, Rochester, Minn., 1554
  Ontario Hospital Ass'n. discusses patient care, Canada, 1788
  Operating Room: See Surgery
  outpatient service for herniorrhaphy, England, 1324
  Parker County, renamed Campbell Memorial, Texas, 1779
  Parkland Memorial, dedicated, Texas, 1222
  patient missing, Leo Lamphere, [Chapman] 213—C
  patients, knee flexion cause venous stasis and thrombosis? 535
  physician relations, A.M.A. report, 936; 954
  physicians' legal responsibility in, England, 1231
  Presbyterian, modernization fund, Pa., 1313
  psychiatric, administration; Menninger Foundation training program, 1219
  psychiatric, reports, England, 63; 699; 1473
  psychiatric, VA to evaluate, 1319
  Reese (Michael) special premature service, 116—E
  Renard, psychiatric unit of Washington U. dedicated, 1311
  Residents; Residencies: See Residents and Residencies
  St. Francis Memorial Burn Center, San Francisco, 1553
  St. Vincent Infirmary opened, Ark., (photo) 1553
  service and staffing under N.H.S., England, 1046
  service reorganization, Denmark, 1789
  specialization, boy with eye injury sent from one to another, England, 506
  staff (lay) shortage, England, 1396
  staff meetings important for accreditation, 685
  staff members from unapproved school; Joint Commission approve? 684
  staffing, coroner criticizes, England, 1046
  survey in Scotland, 65
  survey program, A.M.A. report, 931
  Swiss service, diversity; expenses, 806
  Tuberculosis: See Tuberculosis hospitals
  USPHS research grants, 796
  U. of Nebraska, first building materials, 1777
  U. of Oregon to open in March, 1778
  VA program for long-term patients, 1391
  ward construction in nursing routine, England, 140
  Woman's, Detroit, fertility center, 1777
HOUSSAY PHENOMENON
  in man, 1124—E; [Brenner] 1152—ab; [Harvey] 1419—ab
HYALINE
  disease (pulmonary) of infants, [Martin] 1069—ab
  membrane (pulmonary) as sign of heart failure in the newborn, [Lendrum] 976—ab
HYALURONIDASE
  in rapid hypodermoclysis, [Otaiza] 1411—ab; [Weiss] 1489—ab
  procaine with, in peroral endoscopy anesthesia, [Adler] *111
  treatment of exophthalmic ophthalmoplegia, [Laurent] 1165—ab
HYAZYME: See Hyaluronidase
HYDATID Cyst: See Echinococcosis
HYDATIDIFORM Mole: See Placenta tumors
HYDRABAMINE PENICILLIN G
  N.N.R., 35
HYDRALAZINE HYDROCHLORIDE
  treatment of preeclamptic toxemia, [de Alvarez] 522—ab
  treatment plus hexamethonium in hypertension, [Rast] 1156—ab
  treatment plus pentolinium tartrate in hypertension, [Perry] 76—ab
  treatment plus Rauwolfia in hypertension, [Stuppy] 625—ab
HYDROCEPHALUS
  surgical treatment, peritoneal shunts, [Jackson] 405—ab
HYDROCORTISONE
  enemas for colitis, France, 703
  Fluoro-: See Fludrocortisone
  role in surgery, [Abbott] 1572—ab
  treatment (intra-articular and paravertebral) in spine osteoarthritis, [Cohen & others] *1724
  treatment (intrapleural) in parapneumothorax pleurisy, [Sartori] 1167—ab
  treatment of arthritis, (Switzerland) 968; [Weisman-Netter] 1153—ab; [Boland] 1485—ab
  treatment of asthma, [Vallery-Radot] 711—ab
  treatment of bone metastases, [Gilbert-Dreyfus] 1061—ab
  treatment of herpes zoster, [Marshall] 1161—ab

HYDROCORTISONE—Continued
  treatment of infantile cortical hyperostosis, [Pounders] 975—ab
  treatment of liver diseases, retarded elimination in, Austria, 392
  treatment of orthopedic conditions [Makin] 729—ab
  treatment of pain of prolapsed disk, [Zappalà] 1412—ab
  treatment of rheumatic carditis, [Markowitz] 1069—ab
  treatment of strictures of urethra and meatus, [Bonner] 727—ab
  treatment of syphilis before penicillin, [de Graciansky] 76—ab
  treatment, oral, [Cecchi] 1418—ab
  treatment plus antibiotics in respiratory infections, [Persky] 1417—ab
  [illegible] in Addison's [illegible] *1447
[illegible]
  [illegible] or duo-[illegible] fer; Wil-[illegible]
[illegible] lamide
[illegible] Hydro-
[illegible] UM SUC-[illegible]
  intravenous anesthesia, Netherlands, 1144
2-HYDROXYSTILBAMIDINE
  [illegible] coccidioidomycosis, [illegible]
[illegible]
  effect on brain, Switzerland, 1146
  itch of cowhage caused by? England, 65
HYPAQUE: See Diatrizoate Sodium
HYPEREMESIS GRAVIDARUM: See Pregnancy, vomiting in
HYPEREXTENSION SYNDROME
  low back pain, [Macnab] 1239—ab
HYPEROSTOSIS
  infantile cortical, hormones for, [Pounders] 975—ab
  of cranial vault in Troell-Junet syndrome, Switzerland, 623
HYPERSENSITIVITY: See Allergy
HYPERTENSION: See Blood Pressure, High
HYPERTHYROIDISM
  diabetes and cardiopathy in old age, [Alvarez] 1568—ab
  diagnosis with I^{131}, pitfalls in, [Silver & others] *1
  I^{131} to diagnose and treat, [Chapman] 1237—ab
  I^{131} uptake and blood level in, [Newburger] 823—ab
  in Troell-Junet syndrome, Switzerland, 623
  treatment, I^{131} or surgery, [Clark & Rule] *995
HYPHYLLINE
  N.N.R., 192
HYPNOSIS
  in pregnancy and labor, [DeLee] *756
HYPODERMIC
  injection, rapid; hyaluronidase in, [Otaiza] 1411—ab; [Weiss] 1489—ab
  [illegible] England, 1790
HYPOPHYS[illegible] Pituitary, surgery
HYPO[illegible] d Pressure, low
HYP[illegible]
  in etiology of obesity, "Z-type," Israel, 704
HYPOTHERMIA: See Cold, therapeutic use
[illegible] sowicz] 1164—ab
[illegible] is
[illegible] : See Genitals, roentgen study

I

IDAHO
  poliomyelitis, vaccination-induced in, [Peterson & others] *241
IDIOCY
  amaurotic, in Sinhalese children, [deSilva] 1331—ab
  amaurotic, inheritance, Switzerland, 1050
  amaurotic, National Tay-Sachs Ass'n. organized, 1556
ILEITIS
  acute and subacute terminal, [Chérigié] 629—ab
ILOTYCIN: See Erythromycin
IMAGE AMPLIFIER
  in cardiovascular diagnosis, [Zimmerman] *1449
IMMIGRANTS
  Physicians: See Physicians, foreign
  tuberculous, problems of, England, 964
IMMUNE GLOBULIN: See Poliomyelitis Immune Globulin (Human)
IMMUNIZATION
  combined, England, 210
  U.S.P.H.S. information for international travel, 136
  vaccination for travelers, physician and health officer in, 852—E; [Miller] 1478—C
IMPOSTORS
  missing hospital patient: Leo Lamphere, [Chapman] 213—C
IMPOSTORS—Continued
  uniform salesmen, (Herschel L. Rhodus) 54; (one on West Coast) 200
IMPOTENCE
  after prostatectomy, testosterone help? 1699
  is there a male climacteric with? 94
INDIAN Medical Ass'n. not to train doctors who will not practice "modern medicine," 1791
INDIGENT: See Medically Indigent
INDUSTRIAL ACCIDENTS: See also Workmen's Compensation
  grease gun injuries, 1498
  sports injuries, Norway, 1475
INDUSTRIAL DERMATOSES
  chlorpromazine, (in nurses) [Campbell] 398—C; (in a dentist) [Combes & Reisch] 807—C
  from magnesium? 154
  penicillin reactions in production workers, [Maffei] 731—ab
  [illegible] desensitization in nurses, [Jahr-[illegible]
[illegible]
  [illegible] health hazards of [illegible]
  backache, low, [Wilson] 1332—ab
  carbon disulfide poisoning, [Kleinfeld & Tabershaw] *677
  hazards in industry, [Warren] *1581
  headache after nitroglycerin contact, 410; 1077
  headache from carbon dioxide, 1802
  infectious mononucleosis epidemic among nurses, England, 709; 966
  lead poisoning, edathamil calcium-disodium for, [Zambano] 229—ab
  National Agricultural Chemicals Ass'n., economic poisons, 1134
  of chest, comparative vascular pathology; [Schepers] 528—ab
  penicillin reactions in production workers, [Maffei] 731—ab
  pulmonary, lung biopsy in diagnosis, [van Ordstrand] 528—ab
  pulmonary, relation to metallic oxides, [Perry] 1332—ab
  pulmonary tumors, primary epithelial, [Kreyberg] 75—ab
  rheumatoid arthritis in men in Welsh mines, [Miall] 230—ab
  rhinitis and asthma in bakers, [Pestalozzi] 229—ab
  Silicosis; Pneumonoconiosis: See Pneumonoconiosis
  solvent hazards in dry-cleaning, [Bourne] 730—ab
  [illegible] cell carcinoma and cutting oils, [illegible] 1168—ab
  [illegible] in nurses, [Jahr-[illegible]
  thallium poisoning from rodenticides, Sweden, 510
  uranium mining hazards, [Torrey] 1493—ab
  zinc stereate powder inhalation hazard in rubber industry, 233
INDUSTRIAL HEALTH
  absence from nonoccupational causes, A.M.A. report, 941
  A.M.A. Council report, 906; 1648
  care for nonoccupational illness, A.M.A. Trustees report, 1369—E; 1370
  employment effects during pregnancy, England, 1790
  heart work classification unit, Fla., 1777
  Industrial Medical Ass'n. of Pittsburgh formed, 1036
  local area approach, A.M.A. to study, 909
  medical education and industry meeting, 1388
  Medicine: See also "Industrial Medicine" under Medicolegal Abstracts at end of letter M
  medicine, epidemiology in, [Phair] *1105
  nurses, guiding principles and procedures for, (Council report) 1028
  physician education, 1742—E
  problems, [Warren] *1581
  V.A. work adjustment training, 1784
  workers, employing cardiacs, England, 701
  workers, employing epileptics, England, 63
  workers, industrial employment at home, 1133
  workers, medical care for, A.M.A. report, 940; (resolution) 1765
  workers, miners' stools examined for hookworm, Belgium, 139
  workers, placing the rehabilitated, [Dawson & Anderson] *557
  workers, rehabilitating tuberculous patients, England, 1231
  workers, sedentary, and miners, energy requirements, England, 506
INDUSTRIAL MEDICINE: See Industrial Health; Medicolegal Abstracts at end of letter M
INFANTILE CORTICAL HYPEROSTOSIS: See Hyperostosis
INFANTS
  alkaline dosing, needless, England, 804
  "Blue Babies": See Heart anomalies, tetralogy of Fallot
  care, television series; A.M.A. cooperating, 783
INFANTS—Continued
  death of, in hospitals; causes, Brazil, 964
  death rate in cesarean sections, anesthesia effect on, [Lund] *1586
  E. coli meningitis in 5-day-old infant, [Gordon & Aronow] *1288
  feeding (breast), incidence and duration, England, 508
  feeding, certified milk and carbohydrate, 234
  feeding, cyanosis from nitrogen in water? 1699
  feeding for premature infants, 116—E
  feeding, homogenized milk, [Adam] 1417—ab
  feeding, solid food; when and what? 1335
  manual artificial respiration for, [Rickard] *754; (correction) 1557
  premature, anemia in, [Clément] 146—ab; [Gairdner] 407—ab
  premature, E. coli O 127:B8 causes diarrhea in, [Stulberg] 724—ab
  premature, interstitial plasma cell pneumonia in, [Laursen] 1246—ab
  premature, mortality; special service at Michael Reese Hospital, 116—E
  premature, myopia in, [Fletcher] 1694—ab
  Premature, Retrolental Fibroplasia in: See Retrolental Fibroplasia
  prematurity as cause of death, [Gold] *244
  prematurity in etiology of mental deficiency, [Pasamanick & Lilienfeld] *155
  prematurity relation to maternal nutrition, [Jeans] 85—ab
INFANTS, NEWBORN
  anesthesia (local) in, [Straith] 1496—ab
  anomalies after maternal rubella, [Brawner] 1245—ab
  Asphyxia in: See Asphyxia in newborn
  atresia of auditory meatus in, when and how treat? 737
  death rate, [Gold] *244
  ductus arteriosus in, physiologic closure, [Eldridge] 732—ab
  Feeding: See Infants, feeding
  goiter from mother's use of propylthiouracil, [Aaron & others] *848
  hemoglobin standards differ from adults and pregnant women? 1174
  Hemolytic Disease of (Erythroblastosis): See Hemolytic Disease of Fetus and Newborn
  hemorrhage from anticoagulants during gestation England, 1047
  hospital births increased in U.S., 1021—E
  lung expansion, [Day] *1340
  lung hyaline disease in, [Martin] 1069—ab [Stevenson] 1491—ab
  lung hyaline membrane as sign of heart fai ure in, [Lendrum] 976—ab
  lung state, [Potter] *1341
  melena in, blood orally effect on blood stools, [Apt] 723—ab
  muscle relaxants in, England, 142
  pneumonia in, [Schaffer] 145—ab; [Schai & others] *663
  poliomyelitis in, [Bates] 974—ab
  Premature: See Infants, premature
  peromelus: stumps with no distal parts, Sw erland, 510
  resuscitation of, [Torell & others] *1: (laryngologist in) [Holinger] *1338
INFECTION
  acute, managing diabetes during, [Good *831
  after anorectal surgery, [Anderson & ot *9
  among poliomyelitis contacts, [Horste 1244—ab
  bacterial, chemotherapy, England, 141
  cortisone suppresses resistance to, 1499
  micrococcic, antibiotic-resistant, (reply Finland), [Ross] 70—C
INFECTIOUS DISEASES
  ACTH and adrenals steroids in, [Spink —ab
INFLAMMATION
  C-reactive protein in, [Ruggieri] 1569—
INFLUENZA
  control, current status, [Francis] 1157
  epidemic mild in Europe in winter, 19 68
  in U.S. and Great Britain, 1324
  febrile illness similar to, from tran agent in blood, [Beutler & Dern]
INFRA-RED RAYS
  treatment evaluated, [Martin & *1286
INJURIES: See Accidents; Trauma
  Industrial: See Industrial Accident
INSANITY: See Mental Disorders; legal Abstracts at end of letter
INSECTICIDES
  anticholinesterase toxicity, atropine don & Frye] *1181
  in tobacco raising hazardous? Cau anemia? 1802
INSECTS
  triatomid, carriers of American tr sis, [Woody & Woody] *676
INSIGNIA
  U. S. Army Medical Corps, caduc el] 398—C
INSOMNIA: See Sleep

INSTITUTE: See also *Societies and Other Organizations at end of letter S*
  Albert (Isaac) Research, established, 1312
  Intestinal Research, incorporated, 1668
  Nebraska Psychiatric, at U. of Nebraska, (photo) 199
  of technology at Technion, Israel, food technology department, 705
INSULIN
  coma, psychopathological symptoms on awakening, Peru, 1145
  coma therapy in pregnancy, no harm to mother or child, [Luhan & Tuteur] *1112
  gastric secretion depressed by, in normal man, *[Olson & Necheles] *1013*
  glucose and, tolerance in rheumatoid arthritis, [Houli & Povoa] *561
  Lente: See Lente Insulin
  resistance and sensitivity in diabetes, [Chiarioni] 1484—*ab*
  sensitivity, glucagon effects on, [Alivisatos & McCullagh] *1098; (correction) 1467; [Hubble] 1152—ab
  structure, England, *1047*
  Treatment: See Diabetes Mellitus
INSURANCE
  malpractice, A.M.A. report, 1657
  national, in Israel, 1675
  sickness, Alberta, Canada, 1673
  sickness, A.M.A. reports, 942; 944; 1369—E; 1370; 1767
  sickness, consumer expenditures, 1929-1953, *36—E; (Bureau article) [Dickinson & Raymond]* *41; *119
  sickness (group) no violation found in San Diego litigation, [Medicine and the Law] *1460
  sickness, in Austria, 800; 1045
  sickness, in Geneva, Switzerland, 212
  sickness (national), drug prescribing under, Denmark, 1143
  Sickness, National Health Service: See National Health Service
  sickness (national), reviewed, Sweden, 805
  sickness, Peru proposes for government employees, 1145
  sickness, physician reimburse colleague for personal medical care from? 686
  sickness, private plans used by working people, England, 1397
  sickness, propose more prepaid plans, Canada, 1563
  sickness (voluntary), medical society-sponsored, *A.M.A. resolution on contract formulation, 1761*
  sickness (voluntary), physician's responsibility in, [Fox] *544
INTELLIGENCE
  low normal, and schizophrenia, [Fellner] 1799—ab
  physique relation to, England, 140
INTERNAL MEDICINE
  International Congress, Spain, Sept. 1956, 1780
  problems of training in, [Cooksey] 1052—C
INTERNATIONAL: See also list of *Societies at end of letter S*
  Certificates of Vaccination; physician and health officer in, 852—E; [Miller] 1478—C
  College of Allergists, Switzerland, 622
  College of Surgeons, 20th anniversary, Switzerland, 67
  Conference for Peaceful Use of Atomic Energy, Switzerland, 706
  Congress of Neuropathology, 2nd, 1230
  Congress of Surgery, Denmark, 504
  Congress on Angiology, 2nd, 1050
  Diabetes Federation, 2nd Congress, England, 802
  Pharmaceutical Federation warns of government control of drugs, 1233
INTERNS AND INTERNSHIP
  Ad Hoc Committee on Internships, *255; 932
  A. M. A. resolution on excluding obstetrics and gynecology from straight internship, 929; 1749
  economic problems, (President Hess' page) 380
  foreign graduates as interns, *257
  internships approved, annual report by A.M.A. Council, *251; *261; 378—E
  Internship Review Committee, A.M.A. reports, *256; 932; 1750
  internship role in graduate education, *595
  National Intern Matching Program, *256; 932
  number, September 24, 1955, page 251
  selective service status of interns, *593
  students in, in U. S., 1931-1955, *590
  training and placement problems, A.M.A. report, 927; 1749
INTESTINES
  amebic rectosigmoiditis, Chile, 1395
  carcinoid, pulmonary stenosis from serotonin in? [Carlsen] 223—ab
  carcinoid with liver metastases, tricuspid stenosis and cyanosis, [Olesen] 222—ab
  disease, sodium (total circulating) in, [Leevy & Donovan] *771
  Inflammation: See also Ileitis
  inflammation, chronic nonspecific granulomatous, [Richman] 1407—ab
INTESTINES—Continued
  inflammation, enterocolitis after antibiotics, [Rentchnick] 74—ab; (fatal after tetracycline, Switzerland) 1050
  inflammation, regional enteritis; management, [Bargen] 971—ab
  inflammation, Staphylococcus enteritis after antibiotics fatal, [Thaysen] 1239—ab; [Todd] 1680—ab
  Intestinal Research Institute incorporated, 1668
  metaplasia at pylorus after gastrectomy, England, 393
  obstruction, acute, Brazil, 964
  obstruction, pressure of *enema simulates* megarectum, [Giordana] 969—C
  polyps in large intestine, preserve terminal segment, [Smith] 1690—ab
  sterilization with antibiotics, 3 deaths from, England, 66
  surgery, ureterosigmoidostomy, [Clarke] 147—ab
  tumors, lymphoma, [Skrimshire] 1412—ab
INTRINSIC FACTOR
  diminution after partial gastrectomy? 1700
  treatment plus vitamin B_{12} in pernicious anemia, [Blackburn] 1071—ab
INTUSSUSCEPTION
  chance to occur in child after 2 of 5 children had, 153
  gastroduodenal, [Mauthe] 731—ab
IODIDES
  Sodium Radio-Iodide *(I^{131}), U.S.P.; N.N.R.*, 679
  treatment of moniliasis, inflamed joints related? 1803
IODINE
  In Blood: See Blood Iodine
  Radioactive: See also Radio-Iodinated Serum Albumin
  radioactive, *accumulation by human fetal* thyroids, [Hodges] 85—ab
  radioactive, and TSH to determine thyroid status during thyroid therapy, 829
  radioactive, for euthyroid cardiac disease, [Jaffe & others] *434
  radioactive, for hyperthyroidism, [Clark & Rule] *995
  radioactive, for multiple *myeloma, [Kriss]* 1419—ab
  radioactive, for thyroid cancer, [Ruckensteiner] 1160—ab; [Russo] 1168—ab
  radioactive, pitfalls in diagnostic use, [Silver *& others] *1*
  radioactive, radiation sickness after, [Abbatt] 823—ab
  radioactive, to diagnose and treat hyperthyroidism, [Chapman] 1237—ab
  radioactive, uptake in hyperthyroidism, [Newburger] 823—ab
  radioactive, vs. Tapazole for diffuse toxic goiter, 1803
  treatment of exophthalmos, [Kutschera-Aichbergen] 1060—ab
IODIPAMIDE, SODIUM
  for intravenous cholangiography after cholecystectomy, [Sandweiss & Fulton] *998; [McClenahan & others] *1353
  for intravenous cholecystocholangiography, [Shehadi] *1350; (correction) 1669
  N.N.R., 1295
IODIZED OIL
  for bronchography, [Simonin] 529—ab
IODIZED SALT: See Salt
IODOALPHIONIC ACID
  in oral cholecystography, [Seedorf & Powell] **1361*
IODOMETHAMATE, SODIUM
  for thoracic aortography, [Pender & others] *1738
IODOPANOIC ACID: See Iopanoic Acid
IODOPHTHALEIN SODIUM
  in oral cholecystography, [Seedorf & Powell] *1361
IOPANOIC ACID
  in oral cholecystography, [Reynolds & Fulton] **1358;* [Seedorf & Powell] *1361
IOPHENOXIC ACID
  in oral cholecystography, [Seedorf & Powell] *1361
  N.N.R., 1204
IPRONIAZID
  treatment of multiple sclerosis, [Tschabitscher] 144—ab
  treatment of pulmonary tuberculosis, [Ogilvie] 75—ab
IRGAPYRIN: See Phenylbutazone
IRON
  deficiency after partial gastrectomy, [Wallensten] 815—ab
  foundry, silicosis in, England, 1474
  [illegible] for athletes? 735
  [illegible] for anemia in chil-
  treatment of severe anemia, compounds compared, England, 1232
"IRON CURTAIN"
  hole in: Polish physician studies in Switzerland, 511
IRRIGATION: See Colostomy
ISHIHARA TEST
  for color blindness, England, 1397
ISOFLUROPHATE, U.S.P.
  N.N.R., 1205
ISONIAZID
  toxicity, neuritis; pyridoxine prevents, (Coun*cil report) [Vilter] *1210*
  toxicity; peripheral neuritis, Dupuytren's contracture and Raynaud's phenomenon, [Hines] *1197
  treatment of kidney tuberculosis after PAS and dihydrostreptomycin cause vomiting? 153
  treatment of lupus vulgaris, [Bhattacharyya] *1247*—ab
  treatment of multiple sclerosis, [Tschabitscher] 144—ab
  treatment of ocular tuberculosis, [Kratka] 1165—ab
  treatment of pulmonary tuberculosis, [Ogilvie] 75—ab; (tubercle bacilli resistant to) [Fox] 527—ab; [Chaves] 712—ab
  treatment of tuberculosis, [Drolet] 1407—ab; (in children) [Bour] 1415—ab
  treatment of tuberculous peritonitis of childhood, [Shukry] 86—ab
  treatment plus PAS in tuberculosis, England, 1474
  treatment plus streptomycin in pulmonary tuberculosis in infants; insufflated cavitation from, [Albós Martínez] 724—ab
  treatment plus streptomycin in tuberculosis, *M. R. C. report, England, 142*
  treatment plus streptomycin or PAS in pulmonary tuberculosis, [Véran] 516—ab
  treatment plus thiosemicarbazone in tuberculosis, England, 64
  tubercle bacilli resistance changes *to* sensitive, [Allen & Roberg] *1533
  tubercle bacilli resistant to, England, [Murdoch] *1237—ab;* 1325
ISONICOTINIC ACID HYDRAZIDES: See Iproniazid; Isoniazid
ISOTOPES: See Radioactive Isotopes
ISRAEL
  demographic problems, 1674; (medical geography) 1675
ITALIAN physicians in U. S.; request information on, [Galdston] 1676—C
ITCH
  powder: cowhage, active ingredient? England, 65

J

J.A.M.A.: See American Medical Association JOURNAL
JAUNDICE: See also Medicolegal Abstract at end of letter M
  diagnosis of biliary *obstruction without,* [Brem] *1624
  Epidemic: See Hepatitis, Infectious
  etiology: chlorpromazine, [Movitt] 76—ab; [Cohen & Archer] *99; [Kohl] 728—ab; [McHardy] 1153—ab; [Stacey] 1160—ab
  in fatal liver cirrhosis in a child, (Diagnostic Problem) [Kidd] *1739; (comment) [Boggs] *1741
  in pancreatic disease, [Berk] *1079
  liver decompression by bile duct drainage in, *[Strauss & others] *739*
  spirochetal, England, 1565
JAWS
  fractures, primary care, [Blocker] *422
  tumors, endothelial myeloma in child 3, India, 1791
JEALOUSY
  extreme, in arthritic woman; meperedine or menopause cause? 979
JEJUNUM
  achalasia, Brazil, 1045
  dilatation, after gastrectomy, Belgium, 62
  surgery, gastrojejunostomy for duodenal ulcer, *[Holt] 81—ab*
JENKINS-KEOGH BILL
  A.M.A. Bureau report on, 924
JEWS
  gentle art of poisoning as used by, [Leibowitz] 397—C
  oriental, Cooley's trait in, 395; (correction) 1316
JOINT
  Blood Council, Inc., *new* name of Blood Foundation, 1758
  Commission on Accreditation of Hospitals, (A.M.A. to review function) 118; (answer questions on medical record forms, staff membership qualification, signature vs. initials on charts, "scrub" nurse and electrocardiogram interpreters) 684; (importance of staff meetings for approval) 685; (A.M.A. report on) 933; (A.M.A. resolution on present standards) 1764; (A.M.A. opposes on courtesy hospital staff memberships) 1765
  Commission on Mental Illness and Health, Inc., (A.M.A. report on) 918; (officers) 1557; (progress report by Dr. Bartemeier at Boston) 1645
  Committee on Health Problems in Education, (view *on vitamins and iron for* athletes) 735; (A.M.A. report on) 923
  Consultants Committee discuss N. H. S. in hospitals, England, 1046

JOINTS
  arthrogryposis multiplex congenita, [Kite] 1685—ab
  degenerative joint disease, hydrocortisone for, [Makin] 729—ab
  degenerative joint disease of spine, intra-articular and paravertebral cortisone for, [Cohen & others] *1724
  degenerative joint disease, reserpine for [Bartfeld] *1510
  degenerative joint disease, testosterone for Charcot joints, 153
  disorders as early symptom of bronchial cancer, [Ricklin] 973—ab
  inflammation related to iodide treatment of moniliasis? 1803
JOURNALS
  abstracts of medical articles in current lay magazines, 57; 135; 204; 390; 500; 618; 695; 795; 961; 1040; 1137; 1226; 1318; 1390; 1469; 1559; 1671; 1783
  Current Researches in Anesthesia and Analgesia, development, [Betcher & others] *766
  Detroit Law Review, reprint from, (Medicine and the Law) [Vestal & others] *487
  Films in Review, reprint from, (Leisure Corner) [Spears] *1402
  for Korea, [Rusk] 158:970, July 16, 1955; (correction) [Christenberry] 159:70, Sept. 3, 1955
  Journal of the A.M.A.: See American Medical Association
  new: Behavioral Science, Jan. 1956, 1780
  new: Dietetics and Health, Norway, 1476
  new: Journal of the Royal College of Surgeons of Edinburgh, 1396
  new: Orange County Medical Society quarterly bulletin, October, first issue, Fla., 1664
  Punch, reprints from, [Gordon] *511; *1150; *1402; *1677
  Stanford Medical Bulletin "Festschrift" for Dr. Holman, 1219
  Survey of Current Business, National Income supplement, cost of medical care, 1929-1953, 36—E; (Bureau article) [Dickinson & Raymond] *41; *119
JURISPRUDENCE
  Medical: See Medical Jurisprudence
  prefrontal leukotomy and legal responsibility, England, 508
JUVENILE DELINQUENCY
  in children separated from parents, England, 507

K

KEROSENE
  poisoning in children, prevention, [Carithers] *109
KETOSIS: See Acidosis
KHELLIN
  treatment of angina, [Kory] 728—ab
KIDNEYS
  amyloidosis after cortisone for tuberculosis, Switzerland, 967
  artificial, for salicylism, [Schreiner] 711—ab
  artificial, for uremic child, [Mateer] 87—ab
  biopsy, aspiration, [Schwiebinger & Hodges] *1198
  biopsy, percutaneous, in prone position, [Muehrcke] 1247—ab
  biopsy, value, [Kark] 1568—ab
  calculi in etiology of pyuria, 1424
  disease, albumin-globulin ratio in serum, plasma, or urine in, 1579
  disease, congenital polycystic, [Simon & Thompson] *657
  disease, familial bilateral, Switzerland, 623
  disease from renal glycosuria? 1256A
  disease, glomerular, Swiss society discusses, 967
  disease, glomerulotubular nephrosis produced in rabbit by hepatic surgery, [Crowson] 631—ab
  disease, lipid nephrosis; prednisone for, Switzerland, 1049
  disease, myelomatous, [Magnani] 727—ab
  disease, nephron nephrosis, (Diagnostic Problems) [Plimpton & Gambino] *671; (comment) *673
  disease, nephron nephrosis (lower); tubule degeneration in, [Rice]. 1495—ab
  disease, nephrosis, malaria for, England, 1790
  disease, nephrotic syndrome; ACTH and cortisone for, [Heymann] 629—ab
  disease, nephrotic syndrome, biopsy in, [Gormsen] 1485—ab
  disease, perinephritis, unusual form, Austria, 699
  French Language Society for Renal Pathology, report, 967
  function in mitral disease, [Amerio] 1567—ab
  function relation to retinal vascular reactivity in degenerative vascular disease, [Sieker] 970—ab
  function tests, *p*-aminohippuric acid and mannitol clearance, [Conti] 88—ab
  Inflammation: See Nephritis
  insufficiency, acute traumatic; treatment, [Catlow] 147—ab
  pressor gland in urologic hypertension, [Jiménez-Díaz] 1165—ab
KIDNEYS—Continued
  purpura (unilateral) with clot formation simulating tumor, [Zellermayer] 1164—ab
  solitary pelvic, Austria, 699
  surgery, nephrotomy; hemostasis with muscular tissue in, [Acquati] 88—ab
  tuberculosis, potassium salt of PAS for? 153; (reply) [Molthan & others] 1804
  tumors, adenocarcinoma, [Briggs] 1331—ab
  tumors, malignant lymphomas, [Wentzell] 1164—ab
KINADEN: See Hyaluronidase
KNEE
  disability from referred pain, [Dittrich] 1794—ab
  flexion in bed cause venous stasis and thrombosis? 535
  loose cartilage in, surgery for, 233
  pain 6 years after syphilis; further treat syphilis? 1499
  protectors in arthritis: elastic socks, [Rowntree] 214—C
  tibial collateral ligament divided to remove medial meniscus, [Neviaser] *1595
  tumors (desmoid) of popliteal space in pregnancy, [Ober] 1415—ab
KOREA
  books and journals for, [Rusk] 158: 970, July 16, 1955; (correction) [Christenberry] 159: 70, Sept. 3, 1955
  Korean Medical Association, presents scroll to A.M.A., 1646
KWASHIORKOR
  protein malnutrition and, diet for, [Brock] 1059—ab

L

"L-C" treatment of snake bite, 158: 1235, July 30, 1955; (replies) [Allen; Bierly] 159: 830 Oct. 22, 1955
LSD: See *d-Lysergic Acid Diethylamide*
LABOR: See also "Childbirth" under Medicolegal Abstracts at end of letter M
  anesthesia, 24-hour coverage, [Bonica & Mix] *551
  birth injury as cause of fetal death, [Gold] *244
  complication: absence of left diaphragm, [Williams] 1161—ab
  complications in etiology of mental deficiency in infant, [Pasamanick & Lilienfeld] *155
  complications in etiology of pneumonia in the newborn, [Schaffer & others] *663
  ganglioplegics effect on course of, [Boscaro] 722—ab
  hypnosis in, [DeLee] *750
  illegal accouchement by "natural healer," England, 508
  pain relief in ex-heroin addict, 410
  painless; Soviet psychoprophylaxis, Switzerland, 1049
  sequel: dermatitis, preventing, 1700
  sequel: thrombopenic purpura, 979
LABORATORIES
  radiochemistry, at National Bureau of Standards, 619
  technician, hospital's liability for negligence, [Medicine and the Law] *1380
  test for Doriden, [Sheppard] 1052—C
LACTOFLAVIN: See Riboflavin
LAENNEC'S Cirrhosis: See Liver cirrhosis
LAMPHERE, LEO, missing hospital patient, [Chapman] 213—C
LAPAROSCOPE
  in hepatic biopsy, [Sotgiu] 1238—ab
  in splenoportography, [Wannagat] 1072—ab
LAPAROTOMY: See Abdomen surgery
LARGACTIL: See Chlorpromazine
LARYNGOLOGISTS
  in resuscitation of the newborn, [Holinger] *1338
LATISSIMUS DORSI SYNDROME: See Muscles
LAUNDRY
  sterility of diapers in hospital, (reply) [Sherrill & Kinard] 1478—C
LAWS AND LEGISLATION
  abortion law, suggest changes, England, 1475
  A.M.A. resolution on status of epileptics, 1662
  Doctor Draft Law: See Medical Preparedness
  federal, A.M.A. Committee reports, 888; 890; 1648
  federal, A.M.A. procedure to oppose or support, (President's page) 853
  federal, A.M.A. resolution on repeal of sections of Law 761, 1663
  federal, A.M.A. study conference, 1305
  federal, A.M.A. view on compulsory disability benefits, *1017; 1767
  federal, weekly summary, 39; 117; 381; 611; 782; 1217; 1305
  how to write your congressman, 1021—E
  needed to solve accidental poisoning in children, (Council report) [Arena] *1537
  on alcohol [illegible] Belgium, 139
  [illegible] ocial Security
  [illegible] rties
LEAD
  poisoning (occupational), edathamil cal[illegible]um-disodium for, [Zambano] 229—ab
LECLERC, HENRI, death of, France, 67
L[illegible] ars
  [illegible] 311
  [illegible] 1220
  [illegible]
  [illegible]
  [illegible], [Barr] *1452
  [illegible] (Robert A.) (3rd), 613
  Blatt (Maurice Lamm) Memorial Fund, 788
  Carey (Eben J.) Memorial, 1035
  Chandler, 1035
  Chicago Medical School annual series, 956
  Dearholt Days, 1036
  Dickinson (Albert) Memorial, 1130
  Elsberg (Charles A.), 1035
  Friedenwald (Julius) Memorial, 1554
  Gross (Louis) Memorial, 959
  Hartford Medical Society, 688
  Harvey Lectures of 1955-56, 199; 789; 1132; 1465
  Hauswirth (Louis), 1385
  Hektoen (2nd), 612
  Herzstein, 1129
  Jaffe (Richard H.), 1130
  Kaplan (Leo A), Memorial Lectureship, first, 1219
  McGuire (Stuart), 1386
  Martin (Collier Ford) Oration, 1667
  Mayo (Charles H.) Memorial, 789
  Mudaliar (Sir Arcot) Lectures in India, 1778
  New York Academy of Medicine, for public, 1385; 1666
  Newland (Sir Henry Simpson) Oration, Australia, 1220
  Oak Ridge traveling program, 614
  Pemberton (Ralph) Memorial, 790
  Phemister (Dallas B.), 788
  Phi Beta Pi, 788
  Phi Delta Epsilon annual lectureship, 956
  Porter, 689
  Pusey (William Allen), 197
  Ranson (Stephen Walter), 788
  Salmon (Thomas William), 1312
  Schick (Bela), 1312
  Schoenberg (Mark J.) Memorial, 1385
  Semmelweis, 1386
  Sloan (Alfred P.), first, N. Y. 690
  Tate (John) Memorial, first 7 years of NHS, 1323
  UCLA and Extension, annual series, 1383
  Vann (Herbert M.) Memorial Lectureship, 1778
  Wadsworth (Augustus B.), 789
  Wechsler (Israel S.), first, 1312
  Wilder (William Hamlin) Memorial, 789
LEGAL MEDICINE: See Medical Jurisprudence
LEGS
  arterial pressure in, sphygmomanometer thigh cuff for, [Sapp & others] *1727
  bowlegs, deforming osteochondrosis of tibia in children, [Enklaar] 725—ab
  phlebitis, new sign, [Ortiz-Ramirez] 1060—ab
LEISURE CORNER: See Physicians, avocations
LENTE INSULIN: See also Diabetes Mellitus N.N.R., 34
LEPROSY
  C-reactive protein in, [Rabson] 1684—ab
  exposure, prognostic value of lepromin test, India, 1399
LEPTOCYTOSIS
  hereditary (Cooley's trait) in Oriental Jews, 395; (correction) 1316
  hereditary, liver disease in, [Bogoch] 1678—ab
LEPTOSPIROSIS
  antileptospiral effect of milk, N.Z., 143
  complications, neurologic, [Middleton] 522—ab
  in Israel, [Marberg] 402—ab
LEUKEMIA
  acute, atypical onset, Switzerland, 1566
  acute, chemotherapy effect *on survival*, [Haut] 1249—ab
  acute, pathology, Brazil, 392
  chronic myelocytic, Myleran for, [Haut] 1409—ab
  Fanconi's syndrome with, in 2 brothers, [Cowdell] 1058—ab
  granulocytic, Myleran and Demecolcin for, [Pribilla] 821—ab
  hazard in radiologists, 1256A
  in atomic bomb survivors, [Moloney] 813—ab
  incidence in ankylosing spondylitis treated with x-rays, [Brown] 529—ab
  incidence increasing, England, 210
  lymphocytic (chronic), TEM for, [Hambly] 527—ab
  myeloid; Demecolcine, Thiocolchicine, and Myleran for, [Bousser] 1491—ab
  treatment, cortisone, Switzerland, 623
  treatment, nitrogen mustard, England, 393
  treatment, yeasts, [Protti] 1409—ab
LEUKOCYTES
  count high in spinal fluid in subdural hematoma, diagnostic errors, [Schatten & Nulsen] *559
  count low from x-rays, desoxyribose tetranucleotide for, [Collez] 1250—ab
  resistance in pregnancy increased by stilbene, Switzerland, 1477

LEUKORRHEA
  douches and Baculin for, [Pena] 1692—ab
LEUKOTOMY: See Brain surgery
LEVUGEN: See Fructose
LEVULOSE: See Fructose
LIABILITY: See Malpractice
LICENSURE
  A.M.A. report on annual congress, 930
  of clinical psychologists, A.M.A. report, 917; 1662
LIDOCAINE HYDROCHLORIDE
  additional uses, N.N.R., 1635
  for local anesthesia in peroral endoscopy, [Adler] *111
LIFE
  expectancy in hypertension, [Pfeffer] 401—ab; 1580
  expectancy in left sided colostomy, 1500
  expectancy in recurrent myocardial infarctions with recovery, 1498
  expectancy increasing, USPHS statistics, 1138
  expectancy, where it is greatest, 1369—E
  our American way, [Hoover] *214
  prolonged in coronary atherosclerosis by diet, [Morrison] *1425
LIGAMENTS
  tibial collateral, divide *to remove* medial meniscus, [Neviaser] *1595
LIGATURE: See Sutures
LIGHT
  photoallergic eczema, Switzerland, 212
  role in buckwheat poisoning, 1336
LIGHTING
  fluorescent flicker effect on eyesight, England, 1398
  transilluminators and illuminated retractors, [Berens] *1532
LIGNAC-FANCONI DISEASE: See Cystinosis
LIMESTONE
  dust pneumoconiosis, [Doig] 1168—ab
LIPIDS
  lipid nephrosis, prednisone for, Switzerland, 1049
  lipoid organ extracts in cardiac therapy, [Ferrarini] 1154—ab
  lipoid pneumonia from mineral oil, [Meyers] 150—ab
LIPIODOL: See Iodized Oil
LIPODYSTROPHY
  intestinal, biochemical studies before and after cortisone, [Schaffner] 1058—ab
  isolated, form of mesenteric tumor, [Crane] 717—ab
  psoriasis related *to?* 735
LIPOMA
  fetal fat cell, [Chapadeiro] 974—ab
LIPOPROTEINS
  in coronary sclerosis, England, 1046
  in Whipple's disease before and after cortisone, *[Schaffner] 1058—ab*
LIPS
  cleft lip problem, [Trusler] 1570—ab
LIVEDO RETICULARIS
  summer ulceration in, [Feldaker] 228—ab
LIVER
  anomalies: accessory intrapleural ectopic lobe, [Rodríguez-Pérez] 1411—ab
  biopsies to detect jaundice after chlorpromazine, [Movitt] 76—ab
  biopsy, laparoscopy in, [Sotgiu] 1238—ab
  bone metabolism affected by, [Roberts & Sullivan] *1002
  Brill-Symmers disease localized in, [Wissmer] 221—ab
  cancer incidence, Brazil, 62
  cancer (metastatic), [Diagnostic Problems] [Thorpe] *32; (comment) [Elman] *33
  cancer (metastatic) from intestinal carcinoid, with tricuspid stenosis and cyanosis, [Olesen] 222—ab
  cirrhosis, Diamox to remove water in, [Rissel] 821—ab
  cirrhosis, esophageal varices without hemorrhage in, [Brick] 1688—ab
  cirrhosis (Laennec's), peptic ulcer in, [Swisher] *1483—ab*
  cirrhosis, portal and bilharzial compared, [Rodriguez] 1153—ab
  cirrhosis, portal decompression in, [Plough] 1488—ab
  cirrhosis, prognosis, [Coppo] 222—ab
  cirrhosis, prolonged sodium restriction for, *[Davidson]* *1257
  cirrhosis, total circulating sodium in, [Leevy & Donovan] *771
  cirrhosis with vomiting, jaundice, and ab*dominal pain;* fatal *in* child, (Diagnostic Problem) [Kidd] *1739; (comment) [Boggs] *1741
  coma, [Foulk] 1152—ab
  coma from phenacemide, *[Craddock]* *1437
  damage in noncalculous biliary disease, [Preston] *17
  decompression by bile duct drainage in jaundice, [Strauss & *others*] *739
  diaphragmatic herniation (congenital), [Vogl] 400—ab
  disease, fetor hepaticus: description, dry mouth with? 634
  disease, hydrocortisone elimination retarded in, Austria, 392
LIVER—Continued
  disease in sickle cell anemia, [Bogoch] 1678—ab
  dysfunction in London hospital epidemic, 700
  function and complications after chlorpromazine, [Movitt] 76—ab; [Cohen & Archer] *99
  Inflammation: See also Hepatitis, Infectious
  inflammation (amebic), erythromycin for, [Nelson] 1570—ab
  inflammation (chronic) with severe acne, 1335
  inflammation from chlorpromazine, [McHardy] 1153—ab
  necrosis after celiac artery ligation during gastric resection, [Clarke] 718—ab
  necrosis after phenylbutazone, [McCarthy] 729—ab
  neoplasms (primary) in infants and children, [Packard] 974—ab
  pathology and function in infectious mononucleosis with hepatitis, 1423
  puncture to measure portal pressure, [Lemaire] 719—ab
  regeneration (experimental) after hepatectomies, [Mancuso] 1158—ab
  steatosis of toxicosis, [Chaptal] 976—ab
  surgery (experimental), glomerulotubular nephrosis from, [Crowson] 631—ab
  surgery, lobectomy for gallbladder cancer, [Pack] 520—ab
  surgery, partial resection under hypothermia, [Bernhard] 717—ab
LOAN FUNDS: See also Students, Medical
  long-term from Sears-Roebuck Foundation for new medical units, 37—E; 38
LONGEVITY: See Life expectancy; Old Age
LUNGS
  at birth, expansion *of,* [Day] *1340
  at birth, state of, [Potter] *1341
  biopsy (needle), indications and results, [Fazio] 626—ab
  calcification, scalene lymph node biopsy in, [Johnson] 626—ab
  calculi, cavernolithiasis, [Kivikanervo] 403—ab
  Cancer (bronchogenic): See Bronchus cancer
  cancer, contralateral metastases in bronchial cancer, [Balmes] 1488—ab
  cancer death rates relation *to smoking* and air pollution, [Stocks] 1679—ab
  cancer, [illegible] [illegible] 1687—ab
  cancer [illegible] and smoking, [Ring[illegible] 1323
  cancer, histopathologic and cytologic correlation, [Spjut] 632—ab
  cancer increasing in Bombay, India, 1398
  cancer (metastatic), resection for, [Hood] 518—ab
  cancer, neuropathic aspects, [Romano] 1799—ab
  cancer (primary epithelial), occupation effect on, [Kreyberg] 75—ab
  cancer, site relation to histology, [Walter] 224—ab
  cancer, *surgery for,* [Bérard] 627—ab
  cancer, vitamin K with radiation prolongs survival, England, 803
  collapse after thorax injuries, [Blades] *419
  collapse, trypsin aerosol for, [Biron] 515—ab
  cysts, Peru, 706
  disease (chronic) cause skin pigmentation? 737
  disease (chronic) in histoplasmin reactors, [White] 1060—ab
  disease (diffuse), biopsy in, [Theodos] 150—ab
  disease (occupational), biopsy *to* diagnose, [van Ordstrand] 528—ab
  disease relation to metallic oxides, [Perry] 1332—ab
  disease (severe), after Zenker's diverticulum, [Hawes] 973—ab
  disease undiagnosed, supraclavicular biopsies in, [Skinner] 222—ab
  emphysema and fibrosis, prednisone for, [Bickerman] 1166—ab
  emphysema, regressive gigantic bullous, in tuberculosis, [Alarcón] 400—ab
  hemorrhage in differential diagnosis of chest diseases, [Banyai] *1272
  histoplasmosis, [Puckett] 403—ab
  hyaline disease of infants, [Martin] 1069—ab; [Stevenson] 1491—ab
  hyaline membrane as sign of heart failure in the newborn, [Lendrum] 976—ab
  infections, chloramphenicol for, [Storti] 730—ab
  lesions in rheumatoid disease, [Rubin] 1680—ab
  middle lobe in tuberculosis, [Minetto] 812—ab
  middle lobe syndrome, [Lindskog] 1241—ab
  pathology, transient seropositive non-syphilitic, [Cerviá] 1153—ab
  pleuropulmonary staphylcoccia, pneumonectomy for, in infant, [Chevalley] 1797—ab
  Pneumonoconiosis: See Pneumonoconiosis
  signs of pancreatic fibrocystic disease, [di Sant'Agnese] 86—ab
  staphylococcia, Switzerland, 623
  Surgery: *See also Tuberculosis of Lung*
  surgery for coccidioidomycosis, [Cotton] 403—ab
LUNGS—Continued
  surgery for emphysema, [Weisel] 519—*ab*
  surgery in infants, Peru, 706
  surgery, intubation to prevent infection, England, 142
  surgery, pneumonectomy for pleuropulmonary staphylococcia in infant, [Chevalley] 1797—ab
  surgery, primary segmental resection and resection after pneumothorax compared, [*Marmet*] 80—ab
  surgery, resection for bronchiectasis; prognosis, [Ginsberg] 80—ab
  surgery, resection for metastatic cancer, [Hood] 518—ab
  surgery, resection; function after, [Vargha] 402—ab
  syphilis, gummatous form, Brazil, 1323
  tumors, chondromatous hamartoma and pure chondroma, [Novi] 627—ab
  tumors, focalized granulomas from coccidioides immitis, [Alznauer] 150—ab
  tumors, tuberculoma, (exeresis for) [Bérard] 77—ab; (spontaneous disappearance) [Campbell] 1155—ab
LUPINUS (lupine)
  beans cause reduced blood sugar in diabetes? *153*
LUPUS ERYTHEMATOSUS: See also Medicolegal Abstracts at end of letter M
  L. E. cell phenomenon, simplified test, [Snapper] 712—ab
  L. E. phenomenon positive, significance, [Weiss] 725—ab
  treatment of chronic type, atabrine and chloroquine, *[Stoughton] 87—ab*
  treatment, prednisone, Switzerland, 1146
  treatment, prednisone and prednisolone, [Bollet & others] *1501
LUPUS VULGARIS: See Tuberculosis luposa
LUTCHER, NELLIE, aids health drive, England, 1565
LUTREXIN: See Lututrin
LUTUTRIN
  N.N.R., 194
LYCOPUS
  virginicus in preparing toxic goiter for surgery, [Sittig] 223—ab
LYE: See Sodium hydroxide
LYMPH NODES
  axillary, in breast cancer, [Berg] 715—ab
  cell formation failure in agammaglobulinemia, [Good] 725—ab
  cervical, tuberculosis in children, [Kendig] 1693—ab
  dissection for melanoma? [Lund] 1410—ab
  involvement in London epidemic, 507; 700; 966
  mammary (internal), include in radical mas*tectomy,* [Urban] 627—ab
  pelvic metastases from uterine cancer, [*Lefèvre*] 818—ab
  parasternal curettage in breast cancer, [Redon] 1241—ab
  scalene biopsy in lung calcifications, [*Johnson*] 626—ab
  supraclavicular biopsy in bronchogenic cancer, [Skinner] 77—ab
  supraclavicular biopsy in undiagnosed lung disease, [Skinner] 222—ab
  tuberculous, drugs for, [Mutschler] 1569—ab
LYMPHADENITIS
  mediastinal, exploratory thoracotomy in, [Leech] 1065—ab
  mesenteric, [Bonfigli] 812—ab
LYMPHEDEMA
  after mastectomy, new treatment? 233
LYMPHOMA
  follicular, TEM for, [Hambly] 527—ab
  giant follicular, Brill-Symmers, (splenohepatorectal localization) [Wissmer] 221—*ab*; (P^{32} for) [Desgrez] 529—ab
  malignant, of kidneys, [Wentzell] 1164—ab
  of stomach and intestine, [Skrimshire] 1412—ab
  treatment, nitrogen mustard or *TEM; bone* marrow depression from, [Mrazek & Wachowski] *160
LYMPHOSARCOMA
  idiopathic sprue with, prednisone for, Switzerland, 1146
  treatment, nitrogen mustard, England, 393
  treatment, TEM, [Hambly] 527—ab
d-LYSERGIC ACID DIETHYLAMIDE
  effects on brain, (England) 699; (Switzerland) 1146

M

MACULA LUTEA
  edema with retinitis, 3rd episode; tonsillec*tomy advised?* 1424
MAGAZINES: See Journals
MAGNESIUM
  occupational dermatitis from? 154
  rods in water heating units harmful? 154
MALARIA
  control in Panama, [Dehné] 1569—ab
  eradication, Pan-American coordination, 810
  late recurrences, [Creyx] 76—ab
  prophylaxis, amodiaquin alone or with primaquine, India, 1399
  threat in Gosport, England, 622
  treatment of nephrosis, England, 1790

MALFORMATION: See Abnormalities
MALPRACTICE: See also Medical Jurisprudence; Medicolegal Abstracts at end of letter M
  A.M.A. study, professional liability, 897
  amputation due to gas gangrene after fracture, England, 507
  Grievance Committee: See Societies, Medical
  Insurance: See Insurance, malpractice
  liability in National Health Service, 621
  liability of physicians in hospitals, England, 1231
MANNITOL
  clearance: kidney function test, [Conti] 88—ab
MARCOUMAR: See 3-(1-Phenylpropyl)-4-Hy*droxycoumarin*
MAREZINE: See Cyclizine
MARRIAGE
  advice, role of physician and Planned Parenthood, [Greenhill] 398—C
  career views of women physicians, 1134
  genetic risks of consanguinity, Switzerland, *967*
  status and body weight, England, 1474
MARSHALL ISLANDS atomic tests, fall-out radiation in, [Cronkite & others] *430
MARSILID: See Iproniazid
MATCHING PLAN: See under Interns and Internships
MATERNITY
  care, A.M.A. Committee report, 939
  care in Lincoln and Omaha, Nebraska, (Council article) *783
  factors in etiology of mental deficiency in infant, [Pasamanick & Lilienfeld] *155
  Minnesota Maternal Mortality Committee report, [Council article] *1771
  National Ass'n. for Maternal and Child Welfare conference, England, 141
  service, midwife in, England, 63
MAUTZ-GREGG BACKFLOW
  in surgery for coronary disease, [Beck & Leighninger] *1264
MEASLES
  complications (bacterial), chemotherapy fails to prevent, [Weinstein] 1683—ab
  encephalitis, gamma globulin to prevent and treat, *[Greenberg] 146—ab*
  in infants, *bronchopneumonia after, Peru, 705*
MEAT
  ham, botulism from, Norway, 1399
  Salmonella in, England, 802; 803; 1564
  trichinosis from lamb or mutton? 738
MECLIZINE HYDROCHLORIDE
  N.N.R., 1205
MEDIASTINUM
  lymphadenitis, exploratory thoracotomy for, [Leech] 1065—ab
  tumors, isotope techniques for, [Swedenburg] 1065—ab
Medical . . . For most entries see under the noun concerned as *Economics, Medical; Education, Medical; Journals; Schools, Medical,* etc.
MEDICAL ASSISTANTS
  can they keep secrets? [Public Relations] *1775
MEDICAL CARE: *See Medical Service*
MEDICAL CENTER
  Bellevue, Medical Science Building, dedicated, (photo) 937
  [illegible] ncial aid, 688
  [illegible] leted, Chicago, 158: [illegible], (correction) 159:497, [illegible]
[illegible]
  [illegible] 509; *(Norway)* 1565
MEDICAL EXAMINERS
  system est[illegible] 790
MEDICAL [illegible] also Malpractice [illegible]; Medicolegal Abstracts at end of letter M
  A.M.A. Committee on Medicolegal Problems report, 898
  A.M.A. cosponsors medicolegal film project, 897; 898
  A.M.A. Law Department report, 895
  A.M.A. program on medicolegal education, 896
  A.M.A. sponsors medicolegal symposiums, 610—E; (report) 1638; (photos) 1639
  broken hypodermic needle, litigation, England, 1790
  Congress of International Academy of Legal and Social Medicine, 4th, 201
  criminal poisoning suspected, should doctor report? 1499
  culpable contraceptive cap, patient sued physician, England, 702
  death 10 months after stabbing not murder, England, 1564
  dentist ruled against, for refusing patient, England, 803
  ethical to charge fee contingent upon outcome of litigation? 686
  fractures [illegible] gal implication [illegible]
  illegal [illegible] healer," England, [illegible]
  in undergraduate medical curriculum, [Levinson] *1718
  international congress held, first, 132
MEDICAL JURISPRUDENCE—Continued
  Legal Aid Scheme foment lawsuits against doctors and dentists, England, 702
  Louisville Law Science Foundation established, 1130
  Medicolegal Abstracts, 897
  medicolegal office evaluated, autopsy index, as comparative standard, [Moritz; Spelman] 1327—C
  medicolegal seminar, Kansas, 1384
  settlement out of court urged, England, 622
  teaching in law schools, 1387
MEDICAL PRACTICE: See Medicine, practice; Physicians
MEDICAL PREPAREDNESS
  A.M.A. Council activities on, 915; 1649
  civil defense-improvised hospitals, 52; 1131; (A.M.A. report) 1662
  civilian doctor and security, [Ravdin] *1109
  doctor-draft status, *594; (A.M.A. resolution *on) 1022; 1759*
  doctor-draft vs. adequate pay for career medical corps, (President's page) 1304
  medical education and defense, current status, *592
  military facilities survey, A.M.A. report, 945
  processing physicians for military service, 619
  status of interns, residents and faculty members in selective service, *593; *594
  survey of physicians separated from active service, (Council article) 1306
MEDICAL RECORD LIBRARIANS
  *schools for, *606*
MEDICAL RECORD TECHNICIANS
  schools for, *606
MEDICAL RECORDS
  exhibition, England, 804
  Joint Commission approve "short forms"? 684
MEDICAL RESEARCH COUNCIL (England)
  annual report, 803
  joint report, cortisone and aspirin in chronic rheumatism, 1047; [Cohen] 1238—ab
  report, ACTH and cortisone for blood disorders, 1046; [Witts] 1071—ab
  report, streptomycin and isoniazid for tuberculosis, 142
MEDICAL SERVICE
  economics of medical care since 1929, 36—E; (Bureau article) [Dickinson & Raymond] *41; *119
  federal, A.M.A. Committee report, 942
  for dependents of service personnel, A.M.A. report, 916; 1649
  physician obligate himself for fee contingent upon outcome of litigation? 686
  public attitudes on, [Public Relations] *686
  reciprocity sought by N. H.S., England, 966
MEDICAL SERVICE PLANS
  A.M.A. Commission on, Trustees report, 1369—E; 1370; 1650
  A.M.A. resolutions on Blue Shield, 1767
  A.M.A. resolutions on medical society-sponsored voluntary plans, 1763
  group, no violations found in San Diego litigation, [Medicine and the Law] *1460
MEDICAL SOCIETY: See Societies, Medical; list of Societies at end of letter S
MEDICAL SUPPLIES
  pocket kit, [Barnett] *1451
MEDICALLY INDIGENT
  A.M.A. Committee report, 938
  disability allowances in Canada, 1788
MEDICINE
  American, A.M.A. resolution on Chamber of Councillors to, 1767
  American, what's ahead, [Murray] 1547
  Ayurveda system, India, 1398
  Council for International Organization of Medical Sciences assembly, 1398
  environment, A.M.A. resolution on policies of *A.M.A. on, 1767*
  federal medical spending, 1021—E; 1023
  history, medical students as discoverers, 1214—E
  history, proposed A.M.A. Section on, 1651
  Legal: See Medical Jurisprudence
  medical liberty, Belgium, 1473
  osteopathy and optometry relation to, A.M.A. report, 927; 1662
  practice by tax-supported medical schools, A.M.A. resolution on, 935; 1749; 1750
  practice, establishing; economic problems, (President Hess' page) 380
  practice, establishing; ethical for club to print announcements? [Problem Corner] 687
  practice, establishing; Sears-Roebuck Foundation guides, (loans available) 37—E; 38 (A.M.A. report) 936; (A.M.A. resolution on) 1022; *[Business Practice]* *1481; (A.M.A. resolution) 1759
  practice, general; A.M.A. resolutions on, 928; 1766
  practice, general, and specialization, A.M.A. reports, 609—E; 1662; 1763
  practice, general *practice* department in medical schools [Davison] *235
  practice, group; A.M.A. report, 936
  practice (modern), Indian Medical Ass'n. *not to train* those who will not use, 1791
  practice, type of; distribution by school groupings, *591
MEDICINE—Continued
  practice, unethical; A.M.A. resolutions and report on, 1549; 1651; 1652; 1758
  progress assembly, Los Angeles, 1303—E
  social, being studied, Switzerland, 968
  social, 4th international *congress, 201*
  socialized, physician's role through medical societies in preventing, [Fox] *544
MEDICINE AND THE LAW
  group medical and hospital service plan: no violation found, *1460
  hospital's liability for negligence of laboratory [illegible]
  [illegible] ssue homotransplanta- [illegible]] *487
  [illegible] *383
[illegible] dical Jurisprudence; Medicine and the Law; Medicolegal Abstracts at end of letter M
[illegible]
  [illegible] hagus
  [illegible]
  intraocular, arising from conjunctiva, India, 703
  malignant, is lymph node dissection indicated? [Lund] 1410—ab
MELENA
  neonatorum, effect of oral blood on stools, [Apt] 723—ab
MENINGES
  hematoma (subdural), diagnostic errors from high spinal leukocyte count, [Schatten & Nulsen] *559
  reactions in tuberculosis in children, [Bour] 1413—ab
  subdural effusion complicating purulent meningitis, [Etteldorf] *746
MENINGIOMA
  neurinomas and, hereditary combined, [Davidoff] 628—ab
MENINGITIS
  aseptic, tissue culture to isolate Coxsackie viruses, [Kirby & Evans] *743
  E. coli, in 5-day-old infant, recovery, [Gordon & *Aronow*] *1288
  purulent, management, [Etteldorf] *746
  purulent otogenic, treatment, [Nakamura] 1070—ab
  tuberculous, chloride in body fluids relation to course, [Marini] 522—ab
  tuberculous, intrathecal tuberculin reaction in, [Rennie] 628—ab
  tuberculous, relapses; incidence and prognosis, [Sudhof] 817—ab
  tuberculous [illegible] plus cortisone [illegible]
[illegible]
  diagnosis, Switzerland, 68
MENISCUS
  medial, divide tibial collateral ligament to remove, [Nevlaser] *1595
MENOPAUSE
  artificial, for estrogen deficient psychotic woman? 980
  paranoid psychosis or extreme jealousy caused by? 979
MENSTRUATION
  dysfunction as sign of adrenal disturbances, Austria, 1473
  estrogens delay, Austria, 392
  phlebitis during, Turkey, 968
  premenstrual dysuria, androgens for; affect ovulation? 154
  tampons and sanitary napkins cause *cervix* cancer? 154
  urinary incontinence (functional) in, Austria, 392
MENTAL DEFECTIVES
  children, euthanasia advised, England, 65
  heat stroke in, [Steinzeig] 975—ab
  maternal and fetal factors in, [Pasamanick & Lilienfeld] *155
  medical education should stress, *England, 66*
  phenylpyruvic oligophrenia, [Ferrari] 1160—ab; [Frischknecht] 1574—ab
  surgical treatment, leukotomy, [Petersen & others] *774
MENTAL DEPRESSION
  from Rauwolfia, [Muller & others] *836; [illegible] 39; [Achor & others] [illegible] *1513
  [illegible] poisoning, [Klein[illegible] & Tabershaw] *677
  etiology: carbon tetrachloride poisoning? 634
  general practitioner and discharged mental hospital patient, [Appel & Scheflen] *1278
  in old age, chlorpromazine for, [Mars] 816—ab
  Serpasil as sedative in, *[Fremming]* 144—ab
  treatment, artificial menopause in estrogen deficient woman? 980
  treatment, barbiturate; death from, England, 803
  treatment, chlorpromazine; complications, [Lomas] 83—ab
  treatment, electroshock; cardiac arrest after, (replies) [Davis; Brofman] 536
  treatment, ethylene dichloride poisoning from, [Hubbs & Prusmack] *673
  treatment, insulin coma in pregnancy, no harm to mother or child, [Luhan & Tuteur] *1112

MENTAL DISORDERS—Continued
  treatment, insulin coma, psychopathology on awakening, Peru, 1145
  treatment, reserpine with electroconvulsion, dangers, [Foster & Gayle] *1520
  treatment, sleep prolonged, [Azima] 1490—ab
  treatment, Somnifene; gangrene of arm after accidental intra-arterial injection, [Arruda] 1248—ab
MENTAL HEALTH
  A.M.A. Council reports, 917; 1649
  clinic opened, N. Y., 1464
  Joint Commission on Mental Illness and Health: See Joint Commission
  new quarterly: *Behavioral Science*, 1780
  preventive psychiatry in, [Braceland] *1187
  Swedish Psychiatric Society plans reform, 805
MEPACRINE: See Quinacrine
MEPERIDINE
  addiction, physicians to be warned, England, 1233
  paranoid psycosis from? 979
  respiratory depression from thiopental sodium after, [Dillon & Darsie] *1114
MEPHENESIN
  treatment alone or with chlorpromazine in tetanus, [Adriani] 972—ab
MEPHENTERMINE
  N. N. R., 851
MEPHENTERMINE SULFATE, U. S. P.
  N. N. R., 851
*di*MERCAPTOPROPANOL: See Dimercaprol
MESENTERY
  tumor, isolated lipodystrophy as form of, [Crane] 717—ab
MESTINON: See Pyridostigmine
METABOLISM
  antagonists, foods that do not nourish, Italy, 396
  basal, protein-bound iodine correspond? 1499
  changes in bilateral adrenalectomy, [Graber] 1242—ab
  psoriasis a metabolic disorder? 735
  response to adrenalectomy and hypophysectomy, [Mason] 1413—ab
METACORTANDRACIN: See Prednisone
METACORTANDRALONE: See Prednisolone
METALS
  lung disease relation to oxides of, [Perry] 1332—ab
METAMINE: See Triethanolamine Trinitrate Biphosphate
METAPLASIA
  intestinal, at pylorus after gastrectomy, England, 393
METARAMINOL BITARTRATE
  effect on normotensive subjects, [Weil] 148—ab
  N.N.R., 1290
  treatment of shock, [Moyer] 631—ab
METHANABOL: See Methandriol
METHANDRIOL
  treatment of frigidity, [Migliavacca] 84—ab
METHIMAZOLE
  vs. I^{131} for diffuse toxic goiter, 1803
METHIUM: See Hexamethonium
METHONIUM
  Hexamethonium: See Hexamethonium
  treatment of hypertension, [Rønnov-Jessen] 73—ab
METHOSTAN: See Methandriol
METHOXAMINE HYDROCHLORIDE
  in shock of myocardial infarction, N.N.R., 1634
METHOXSALEN
  N.N.R., 1290
  treatment of vitiligo, 1077
METHSCOPOLAMINE BROMIDE
  N.N.R., 1291; (parenteral) 1635
  treatment of duodenal ulcer, gastric secretion after, *[Rider & others] *1085*
METHSCOPOLAMINE NITRATE
  N.N.R., 1292
METHYLANDROSTENEDIOL: See Methandriol
METHYLPENTYNOL
  toxicity, psychosis, England, 1232
  used for courage, recommend classify as poison, England, 804
METICORTEN: See Prednisone
METOQUIN: See Quinacrine
METRAZOL: See Pentylenetetrazole
MICROCOCCUS: See Staphylococcus
MIDDLE LOBE SYNDROME
  [Lindskog] 1241—ab
MIDWIVES
  in maternity service, England, 63; 505
MIGRAINE
  international allergists discuss, 622
  treatment, arterenol, [Ostfeld] 970—ab
MILITARY
  liability of medical students, *583; *587
  Preparedness: See Medical Preparedness
  service, survey of physicians separated from, (Council article) 1306
MILK
  antileptospiral effect of, N. Z., 143
  calcium carbonate with, to control hyperchlorhydria, [Boros] 714—ab
  certified, in infant feeding, 234
  homogenized, digestion in infants, [Adam] 1417—ab
  safe supply for travelers, 1802
MILK—Continued
  skimmed, in kwashiorkor, [Brock] 1059—ab
  tuberculosis from, statistics, England, 1143
  tuberculosis in, how to make milk safe; use buffalo milk? 536
  vitamin D importance; standards recommended, (Council article) *1018
MINERAL OIL: See Petrolatum, liquid
MINERS
  energy requirements, England, 506
  health of; stools examined for hookworm, Belgium, 139
  rheumatoid arthritis in Welsh community, [Miall] 230—ab
MINNESOTA
  Maternal Mortality Committee study, [Council article] *1771
  tuberculin testing of school children, 28-year study, [Myers & others] *185
MISSING PERSONS
  Lamphere, Leo, hospital patient, [Chapman] 213—C
MITRAL VALVE
  disease and epilepsy, [Lusiani] 514—ab
  disease, kidneys in, [Amerio] 1567—ab
  disease, re-operation for, [Baronofsky] 517—ab
  stenosis, surgery for, [Ellis] 402—ab; [Grossi] 518—ab; [Ellis] 715—ab; [Goodwin] 1064—ab; (embolism with, prognosis) [Actis-Dato] 1571—ab; [Baker] 1685—ab; (embolism and thrombosis with) [Belcher] 1686—ab; [d'Allaines] 1689—ab
  surgery, carotid exploration for hemiplegia after, [Boyd] *112
  surgery, commissurotomy; 5 year analysis, [Glover] 1487—ab
  surgery, psychiatric complications; death after electroshock for, [Bliss] 1160—ab
  surgery, rheumatic fever reactivated after, [Fell] 1570—ab
  surgery, valvoplasty; rheumatic activity in auricular appendages, [Clark] 1496—ab
MONILIASIS
  bronchopulmonary, CMA 37 for, [MacIntosh] 230—ab
  during antibiotics, avitaminosis with, [de Graciansky] 408—ab
  treatment, iodides; inflamed joints related? 1803
MONODRAL Bromide: See Penthienate Bromide
MONONUCLEOSIS, INFECTIOUS
  epidemic among nurses, England, 700; 966
  hemolytic anemia (acute) in, [Kirkham] 1485—ab
  hepatitis with; liver pathloogy, function tests and activity restriction in, 1423
  statistics on 77 cases, [Savosnick] 73—ab
  treatment of severe anginose type, ACTH, [Mandel & others] 158:1021, July 23, 1955; (correction) 159:132, Sept. 10, 1955
MONOPHEN
  in oral cholecystography, [Seedorf & Powell] *1361
MOORE, CARL R., death of, Chicago, 1310
MORPHINE
  alcohol as contraindication, [Naalsund] 727—ab
  dicetyl, pain relief during labor in ex-heroin addict, 410
  treatment plus diamino-phenylthiazole in intractable pain, [Shaw] 526—ab
MORQUIO'S DISEASE: See Eccentro-osteochondrodysplasia
MORSUS Humanus: See Bites, human
MOTION PICTURES: See Moving Pictures
MOTORCYCLES
  B.M.A. views on crash helmets, England, 65
MOTOR VEHICLES: See Automobiles; Medicolegal Abstracts at end of letter M
MOUTH
  cancer, sex morbidity trends, [Russel] 1696—ab
  excessively dry, in fetor hepaticus? 634
  smears to detect chromosomal sex, [Moore] 732—ab
MOVING PICTURES
  at Boston Clinical Meeting, 866
  doctors in, (Leisure Corner) [Spears] *1402
  health aspects, physicians and schools discuss, 1125—E; 1126
  medicolegal film project, A.M.A. cosponsors, 897; 898
  Medico-Surgical Cinema awards, 1135
  review of Richard Gordon's "Doctor at Sea," 804
  revised list available through A.M.A., 783
MOVING PICTURES, MEDICAL (REVIEWS)
  BCG Vaccination Against Tuberculosis, 1481
  Blood Grouping, 1405
  Congenital Absence of the Vagina and Its Treatment, 513
  Disaster Anesthesia, 709
  Drug Addiction: Medical Hazard, 1482
  Eat for Health, 1151
  Good Health Practices, 1405; 1481
  Gout and Gouty Arthritis, 1405
  Hard Brought Up, 1150
  Heart—How It Works, 810
  Industrial Dermatitis, 1151
  Mrs. Hazard's House, 513
MOVING PICTURES, MEDICAL REVIEWS—Continued
  Nurse Please, 1481
  One Victory, 513
  Orbital Mucoceles, 1151
  Peridural and Caudal Anesthesia, 513
  Physiology of Reproduction in the Rat, 1482
  Principles of Respiratory Mechanics, 709
  Pruritus Ani, 1677
  Radioisotopes, 1482
  Safe Tuberculosis Nursing, 1677
  Streamline Flow in the Veins, 513
  Surgical Anatomy of the Female Pelvis, 1792
  Surgical Approaches to Joints of the Wrist, 709
  Surgical Approaches to the Elbow Joint, 709
  Surgical Approaches to the Spine and Sacroiliac, 709
  Technic for Splenectomy, 1151
  Termination of the Bile Duct, 1151
  The Doctor Examines Your Heart, 1482
  Too Young to Burn,709
  Toxemia of Pregnancy, 709; (correction) 1038
  Videclinic: Mind and Medicine, 1482
  William Harvey and the Circulation of the Blood, 1482
MUCANAIN
  cause of itch from cowhage? England, 65
MUMPS (epidemic parotitis)
  bacterial endocarditis in boy with interventricular septal defect after, 633
  encephalitis, pathology and pathogenesis, [Donohue] 1330—ab
  orchitis, sperm count low after; treatment effective? 154
MURDER
  death 10 months after stabbing not, England, 1564
MURRAY, DWIGHT H., address at public relations conference, 1547
MUSCLES
  disease, importance of diagnostic methods, [Schmidt] *1175
  innervation, *regeneration in poliomyelitis and* amyotrophic lateral sclerosis, [Wohlfart] 1066—ab
  latissimus dorsi syndrome, [Dittrich] 1410—ab
  microwave and infrared heating evaluated, [Martin & Herrick] *1286
  neuralgia, posture and, [Johnson] *1507
  relaxants, Trendelenburg position in surgery on newborn not necessary with, England, 142
  relaxants, world anesthesiologists discuss, 1145
  scalenus anticus syndrome could cause hand numbness, 1077
  structure and function research, request reprints, [Szirmai] *808—C*
  tissue in nephrotomy for hemostasis, [Acquati] 88—ab
  wasting in diabetes, [Garland] 1795—ab
MUSIC: See Physicians, avocations
MUSTARGEN: See Nitrogen Mustard
MYANESIN: See Mephenesin
MYASTHENIA GRAVIS
  surgical treatment, thymectomy, [Keynes] 77—ab
  treatment, Mestinon, [Lønnum] 1167—ab
MYELITIS
  transverse, after T.A.B. inoculation, [McKelvey] 1490—ab
  transverse (schistosomal), fatal, Brazil, 1323
MYELOGRAPHY: See Spinal Canal
MYELOMA
  endothelial, of jaw in girl, 3, India, 1791
  myelomatous nephropathy, [Magnani] 727—ab
  treatment, I^{131} and radioactive iodinated serum albumin, [Kriss] 1419—ab
  treatment, nitrogen mustard, England, 393
MYLERAN: See 1:4-Dimethanesulphonyloxybutane
MYOCARDIUM
  infarction (acute), phenylindanedione for, [Breneman] 72—ab
  infarction, anterior chest wall syndrome after, [Prinzmetal & Massumi] *177
  infarction, anticoagulants for, [Heichmann] 220—ab; (indefinitely?) 735; (effects on prognosis) [Suzman] 1154—ab
  infarction, appendectomy later; death 9 days after related? 1802
  infarction, coronary thrombosis with; treatment, [Wood & others] *635
  infarction, (Diagnostic Problems) [Plimpton & Gambino] *671; (comment) *673
  infarction, diet to prolong life after, [Morrison] *1425
  infarction in younger people, [McVay] 220—ab
  infarction, operative risk, [Etsten & Proger] *845
  infarction, premonitory period, [Maurice] 514—ab
  infarction, recurrent, with recovery; cause of dyspnea; life expectancy, 1498
  infarction relation to effort for Workmen's Compensation, 737; (reply) [Parisi] 1804
  infarction, shock with, methoxamine hydrochloride in, N.N.R., 1634
  infarction, Sintrom for, [Moeschlin] 408—ab
  infarction, threatening, [Kjærgaard] 1567—ab

MYOCARDIUM—Continued
  infarction with coronary occlusion, vasodilators for, 1579
  lipoid extracts of, in cardiac therapy, [Ferrarini] 1154—ab
  oxygen distribution in coronary disease, (color plates) [Beck & Leighninger] *1264
  ventricular, implant mammary artery in, for coronary disease, [Bakst] 813—ab
MYOPIA
  of prematurity, [Fletcher] 1694—ab
MYOSITIS
  rheumatoid, pain in neck and shoulder, [Krusen] *1282
MYSOLINE: See Primidone

Medicolegal Abstracts

ALCOHOL: See Drunkenness
ALCOHOLISM: See Drunkenness
ANESTHETICS: See also Malpractice
  spinal; failure to obtain patient's consent, 1235
ARMY AND NAVY
  doctor draft; assignment of duties; army's discretion, 50
  doctor draft; right to commission, 50
  doctor draft; right to perform medical services, 50
ASSAULT AND BATTERY: See also Malpractice
  unauthorized administration of spinal anesthetic, 1235
BURNS · See Hospitals, Governmental; Malpractice
CHILDBIRTH
  prenatal injuries; liability for, 219
  prenatal injuries; viability in relation to, 219
CHIROPRACTIC
  manipulation; dislocation of vertebra caused by, 809
DERMATITIS
  workmen's compensation in relation to, 127
DERMATITIS VENENATA: See Workmen's Compensation: contact dermatitis
DERMATOLOGY: See Malpractice
DRUNKENNESS
  chemical tests; admissibility in evidence, 50; 1792
  chemical tests; defendant's failure to submit to test, 1792
  chemical tests; delay in arrest as violation of constitutional rights, 1792
  chemical tests; due process of law, 1792
  chemical tests; not a privilege, 1792
  chemical tests; self-incrimination, 50
  chemical tests; unconscious person, 1792
EVIDENCE
  drunkenness; chemical tests; admissibility in evidence, 50; 1792
  drunkenness; chemical tests; self-incrimination, 50
  witnesses, expert; necessity for, 1149; 1792
  scientific tests; drunkenness, 50
GOLD TREATMENT
  of lupus erythematosus, 1792
HOSPITALS, GOVERNMENTAL
  agents; liability for negligence of, 809
  as exercise of governmental function, 809
  burns; hot water bottles, 809
  negligence; non-liability, 809
  pay patients; injury to, 809
HOSPITALS, IN GENERAL
  privileged communications; hospital records in relation to, 127
  records; names of patients, 127
  records; privilege in relation to, 127
INDUSTRIAL MEDICINE
  negligence of company physician in relation to, 219
INSANITY
  civil; affidavit; no personal examination, 1149
  civil; malpractice in relation to, 1149
JAUNDICE
  following gold treatment, 1792
LUPUS ERYTHEMATOSUS
  gold injections for, 1792
MALPRACTICE
  anesthetics; failure to obtain consent to administer, 1235
  anesthetics; spinal; failure to obtain patient's consent, 1235
  anesthetist; failure to obtain patient's consent, 1235
  anesthetist; surgeon's liability for assault and battery by, 1235
  assault and battery; operations without consent, 1149
  assault and battery; unauthorized administration of spinal anesthesia, 1235
  burns; roentgen rays, 1149
  chiropractor; dislocation of vertebra, 809
  chiropractor; *manipulation*; dislocation of vertebra, 809
  company physician; negligence of; company's liability, 219
  consent; anesthesiologists' failure to obtain, 1235
  dermatology; jaundice following *gold treatment*, 1792
  diagnosis; surgeon's reliance on diagnosis of referring physician, 1149

Medicolegal Abstracts—Continued
MALPRACTICE—Continued
  [illegible] ty for, 1792
  dislocated vertebra; by chiropractor, 809
  evidence, res ipsa loquitur, 809; 1149
  evidence; res ipsa loquitur; injury to vocal cords, 809
  evidence; witnesses, expert; necessity for, 1149; 1792
  gold treatment; jaundice following, 1792
  industrial medicine in relation to, 219
  jaundice following gold treatment, 1792
  limitation of actions, 1149
  lunacy affidavit in relation to, 1149
  lunacy affidavit; no personal examination, 1149
  lupus erythematosus; gold injection; jaundice following, 1792
  malicious prosecution, 1149
  operations; assault and battery, 1149
  operations; consent, 1149; 1235
  operations; consent; necessity for, 1149
  operations; consent; surgeon's reliance on diagnosis of referring physician, 1149
  operations; vocal cords, 809
  res ipsa loquitur; see evidence
  roentgen rays; burns, 1149
  skill and care; standard, 1792
  spinal anesthetic; administration without consent, 1235
  surgeon's liability for acts of anesthesiologist, 1235
  surgeon's reliance on diagnosis of referring physician, 1149
  vertebra; dislocation by chiropractic manipulation, 809
  warts; burns resulting from removal, 1149
MOTOR VEHICLES: See also Drunkenness; chemical tests
  drunken driver; chemical tests, 1792
  drunken driver; delay in arrest, 1792
NEGLIGENCE
  company physician; liability of company, 219
PRENATAL INJURIES
  liability for, 219
  viability as criteria for liability, 219
PRIVILEGED COMMUNICATIONS
  hospital records; inspection by department of internal revenue, 127
  hospital records; names of patients, 127
RES IPSA LOQUITUR: See Malpractice; evidence
ROENTGEN RAYS: See also Malpractice
  burns, 1149
ROENTGENOGRAMS: See Malpractice; roentgen rays
SPINAL ANESTHETIC: See *Anesthetics*
STATUTE of LIMITATIONS: See Malpractice; limitation of actions
TAXES
  federal income; hospital records in relation to investigation of tax returns, 127
VERTEBRAL DISLOCATION
  chiropractic manipulation in relation to, 809
WARTS
  burns following removal, 1149
WORDS AND PHRASES
  accident, 127
  viability, 219
WORKMEN'S COMPENSATION ACTS
  baker's mitten; contact dermatitis from, 127
  contact dermatitis, baker's mitten, 127
  dermatitis from baker's mitten, 127
  inhalation of fumes; as *accident*, 219
  loss of earning power in relation to, 219
  xanthate; inhalation *of as accident*, 219
XANTHATE
  inhalation of in relation to Workmen's Compensation Acts, 219

N

NAILS (anatomic)
  ingrown, remove margin and bed for, 1580
NARCOSIS
  fetal brain and, [Courville] 1246—ab
  in psychiatry, (Brazil) 1045; [Azima] 1490—ab
NARCOTICS
  addiction, Finland, 1325
  traffic, (England) 622; (Canada) 1673
NATIONAL (societies): See also Societies at end of letter S
  Ass'n. for Dietetics and Health established, Norway, 1475
  Ass'n. for Prevention of Tuberculosis, 4th conference, London, 209
  Better Business Bureau survey on corporate giving to hospitals, 1742—E
  Bureau of Standards, new radiochemistry laboratory, 619
  Cancer Ass'n., breast cancer diagnosis, Norway, 1476
  Cancer Institute, (institute for science teachers) 619; (cancer epidemiology in U.S.) [Heller & others] *1628
  Conference on Physicians and Schools, 1125—E; 1126
  Intern Matching Program, *256
  Medical Public Relations Conference (8th) (program) 1216; (Dr. Murray's address) 1547
  Office of Vital Statistics, 1956 birth and death certificates, [Dunn] *1184; 1215—E
NATIONAL—Continued
  Research Council, grants-in-aids, 1470
  Safety Council's Certificate of Commendation to A.M.A. Committees for accidental poisoning program, 781—E
  Society for Prevention of Blindness and A.M.A. television aids, 381
NATIONAL HEALTH SERVICE (England)
  B.M.A. urges monthly checks from, 66
  budget and, 1791
  cost, (annual report) 1231; (correction) 1467; (prescriptions) 1673
  first 7 years, John Tate Memorial Lecture, 1323
  hospital service in, 1046
  in Northern Ireland, 1954-55, report, 1324
  legal liability in, 621
  organizational changes, 966
  patients in London area exceed population, 803
  perambulating patient in, 64
  physicians' fees for temporary residents, 1397
  progress, 1565
  reciprocity sought with foreign countries, 966
  regulations, when is a drug not a drug? 1789
  ruling in case involving inspection of premises, 803; 1397
  state may pay for face lifting, 965
  vs. B.M.A. on free drugs for private patients, 64
  women to be paid same rate as men, 1565
NATIONAL HEALTH SERVICE (Scotland)
  caring for elderly under, 701
NAVEL: See Umbilicus
NAVY: See also "Army and Navy" under Medicolegal Abstracts at end of letter M
  hero, C. E. Rhodes died in submarine explosion, England, 141
NEBACETIN: See Bacitracin-Neomycin
NEBRASKA
  Lincoln and Omaha, maternal and child care in, (Council article) *783
  Psychiatric Institute dedicated, (photo) 199
NECK
  cancer (advanced), chlorophyll deodorization, (reply) [Joseph] 70—C
  cervicobrachial pain and posture, [Johnson] *1507
  pain, causes and therapy, [Krusen] *1282
  surgery, carotid-artery ligation in, [Moore] 720—ab
  whiplash injuries in automobile accidents, preventing, [Shelden] *981
NEEDLES
  hypodermic (broken), litigation, England, 1790
  multiple, to drain massive edema, [Wild] *26
NEGLIGENCE: See Medicolegal Abstracts at end of letter M
NEGROES
  United Negro College Fund solicits contributions, 1223
  V, Rh antigen common in, rare in white people, [DeNatale & others] *247
NEO-IOPAX: See Iodomethamate
NEOMYCIN
  Combined with Bacitracin: See Bacitracin-Neomycin
  sulfate (topical), effects on axillary odor, [Shelley & Cahn] *1736
NEOTHYLLINE: See Hyphylline
NEPHRITIS
  epidemic, in Minnesota, [Reinstein] 722—ab
  glomerular, biopsy in, [Gormsen] 1485—ab
  glomerular, complicating rheumatic fever; prophylaxis, 1078
  Schönlein-Henoch syndrome compared with, [Lewis] 408—ab
  Tuberculous: See Kidneys, tuberculosis
  without albuminuria, [Czoniczer] 1486—ab
NEPHROCALCINOSIS
  urine acidity and, [Reynolds] 1247—ab
NEPHRON Nephrosis: See Kidneys, disease
NEPHROSIS: See Kidneys, disease
NEPHROTOMY: See under Kidneys
NEPRESOL: See Dihydrazinophthalazine
NERVES
  cervical plexus transection to relieve dysmenorrhea, [Doyle] 407—ab
  injuries, skin temperature relation to, [Shapiro] 721—ab
  laryngeal, palatine and glossopharyngeal blocks for peroral endoscopy, [Adler] *111
  optic atrophy, interrupt pregnancy for? 1172
  optic papilledema with hypertensive vascular disease, rice diet for, [Newborg] 516—ab
  pathology in bronchopulmonary cancer, [Romano] 1799—ab
  root decompression for trigeminal neuralgia, [Woolsey] *1713
  root decompression in surgery for spondylolisthesis without spine fusion, [Gill] 82—ab
  splanchnicectomy and sympathectomy, or plus adrenalectomy in hypertension, [Cartier] 814—ab
  splanchnicectomy for hemorrhagic hypertensive retinitis, [Huntington] 1159—ab
  tumors, hereditary combined neurinomas and meningiomas, [Davidoff] 628—ab
  vagotomy wi[illegible] surgery for duodenal [illegible] [Hoerr] 224—ab; [illegible] [Henson] 1065—ab; [illegible] [Dragstedt] follows 1700

- NERVOUS SYSTEM
  - complications in canicola fever, [Middleton] 522—ab
  - complications in carbon disulfide poisoning, [Kleinfeld & Tabershaw] *677
  - *diagnostic methods in physical medicine,* [Schmidt] *1175
  - disorder could cause hand numbness, 1077
  - International Congress of Neuropathology, 1230
- NERVOUS SYSTEM, SYMPATHETIC
  - block (stellate) for hemiplegia by procaine injection, India, 1398
  - surgery, endoscopic-transthoracic approach: Kux technic, [Rosenauer] 404—ab
- NEURALGIA
  - myoneuralgia and posture, [Johnson] *1507
  - supraorbital, after removing foreign body from eye, 535
  - trigeminal, dihydroergotamine for, [Decker] 83—ab
  - trigeminal, stilbamidine for, [Woodhall] 226—ab; 1574—ab
  - trigeminal, Taarnhøj decompression for, [Woolsey] *1713
  - trigeminal, therapy and pathogenesis, [Sperling] 144—ab
- NEURINOMA
  - meningiomas and, hereditary combined, [Davidoff] 628—ab
- NEURITIS
  - peripheral, after isoniazid, [Hines] *1197
  - polyneuritis, diphtheritic, Turkey, 968
  - polyneuritis signs in London hospital epidemic, 700; 966
  - treatment, BAL, [Romualdi] 83—ab
- NEUROBLASTOMA: See Sympathicogonioma
- NEUROPSYCHIATRY
  - chlorpromazine-Rauwolfia in, [Eiber] 406—ab
- NEUROSURGERY
  - for diabetes insipidus, [Botterell] 227—ab
- NEWSPAPERS: See Press
- NIACIN: See Nicotinic Acid
- NICOTENE: See Nicotinic Acid
- NICOTINIC ACID
  - tetrahydrofurfuryl ester reaction to diagnose rheumatic fever, [Saslaw] *653
- NITROGEN
  - in water cause cyanosis? 1699
- NITROGEN MUSTARD
  - toxicity: hematopoietic depression, [Mrazek & Wachowski] *160
  - treatment of malignancies, England, 393
  - treatment of neoplastic serous effusions, [Weisberger & others] *1704
- NITROGLYCERIN: See *Glyceryl Trinitrate*
- 3-NITROPHENYLACETYLETHYL-4-OXYCOUMARIN
  - new anticoagulant, [Moeschlin] 408—ab
- NITROUS OXIDE
  - anesthesia, cerebral damage *after,* England, 505
  - oxygen with, for respiratory depression from *thiopental, [Dillon & Darsie]* *1114
- NOMENCLATURE: See *Terminology*
- NOR-EPINEPHRINE: See Arterenol
- NOSE
  - fractures, primary care of, [Blocker] *422
  - hemorrhage after adenoidectomy, estrogens for, [Menger] *546; [Gertner] 1401—C
  - infection, antibiotic specificity, [Goldstein] 1417—ab
  - tumors, fibroma, [Christiansen] 1417—ab
- NOVOCAIN: See Procaine Hydrochloride
- NUFFIELD, William Richard Morris, 1st viscount
  - gift for Royal College of Obstetricians and Gynecologists, 1144
- NUMBNESS
  - of hands at night, differential diagnosis, 1077
- NURSES AND NURSING
  - A.M.A. recommendations on vocational training legislation, 1648
  - chlorpromazine dermatitis in nurse, [Campbell] 398—C
  - experiments on patient routines and ward construction, England, 140
  - guiding principles and procedures for industrial nurses, (Council report) 1028
  - infectious mononucleosis epidemic among nurses, England, 700; 966
  - Joint Commission approve of practical nurses as "scrub" nurse? 684
  - nurses want free drugs, England, 1565
  - psychiatric nurse, (England) 394; (Switzerland) 1566
  - streptomycin desensitization in nurses, [Jahrmärker] 1494—ab
- NUTRITION
  - education, new A.M.A. Council program, *779
  - guide for mothers, Peru, 509
  - improves with sodium restriction for cirrhosis of liver, [Davidson] *1257
  - parenteral (complete), possibilities,. [Wretlind] 527—ab
- NUTS
  - cashew shells, anthelmintic from, India, 1399
- NYDRAZID: See Isoniazid
- NYLIDRIN HYDROCHLORIDE
  - N.N.R., 1208
- NYLON
  - mesh to repair abdominal wall, [Petrina] 1798—ab

O

- OATH
  - urged for scientists, England, 965
- OBESITY
  - diet modification at various ages, Mexico, 805
  - *dislocation (chronic nontraumatic) of second toe in older women,* 1174
  - essential nature, effects, treatment, England, 142
  - experimental, new concepts, [Fertman] 151—ab
  - hypothalamic, "Z-type," Israel, 704
  - in coronary atherosclerosis, diet to prolong life in, [Morrison] *1425
  - night-eating syndrome, [Stunkard] 516—ab
  - polycythemia with, [Weil] *1592
  - symposium: causes, complications, Mexico, 805
  - types of adiposity, Mexico, 805
  - weight reduction in, [Sapoznik] 149—ab
- OBITUARIES: See list of Deaths at end of letter D
- OBLIVON: See Methylpentynol
- OBSTETRICS
  - Anesthesia in: See Anesthesia
  - boom in, 1929-1953, 36—E; (Bureau article) [Dickinson & Raymond] *41; *119
  - British Congress, 14th, 505
  - excluding from straight internship, A.M.A. *resolution on,* 929; 1749
  - international union founded, 793
  - research, England, 394
- OCCUPATIONAL Dermatoses; Diseases, Health, etc.: See under Industrial
- OCCUPATIONAL THERAPY
  - for handicapped, 1540—E
  - schools for, *605
- ODOR
  - axillary, topical antibiotics effects on, [Shelley & Cahn] *1736
  - deodorization of poorly ventilated rooms, 1174
  - fetor hepaticus: description, dry mouth with? 634
  - in urine, cause; means to eliminate, 1579
- OIDIUM (Candida) albicans Infection: See Moniliasis
- OIL
  - cutting, and squamous-cell carcinoma, [Mastromatteo; Gilman] 1168—ab
  - Iodized: See Iodized Oil
  - Mineral: See Petrolatum, liquid
- OLD AGE
  - A.M.A. Committee on Geriatrics, 879; (report) 935
  - American Society for the Aged established, 1667
  - anesthesia (general) effects on brain in, England, 504
  - boarding out older people, England, 66
  - care in Scotland under N. H. S., 701
  - cerebral thrombosis and chorea, reserpine for, [Lemmon] 1148—C
  - chlorpromazine for neuropsychic syndromes, [Mars] 816—ab
  - diabetes, hyperthyroidism, and cardiopathy in, [Alvarez] 1568—ab
  - *Elder Craftsmen Shop opened,* N. Y., 494
  - Florida Council on Aging organized, 955
  - health center for, in Scotland, 505
  - health of older people, Norway, 1475
  - metrazol therapy in, [Suter] 720—ab
  - New York Academy Graduate Fortnight on, 613
  - skin diseases in, placental therapy for, Italy, 1144
  - VA program on rehabilitation, 501
- OLEANDER
  - treatment (combination) in cardiac insufficiency, [Bär] 819—ab
- OLIGOPHRENIA: See Mental Defectives
- OPERATING ROOM: See Surgery
- OPHTHALMOPLEGIA: See Eyes, paralysis
- OPTOMETRY
  - physicians' relation to, Judicial Council report, 927; 1662
- ORBIT
  - varices, intermittent exophthalmos from, [Sená] 630—ab
- ORCHESTRA: See Physicians, avocations
- ORGANS: See also under specific organ
  - vital, hypothermia effects on, England, 1474
- ORLON
  - to replace arteries, [Kinmonth] 77—ab
- ORNITHOSIS
  - epidemic, chlortetracycline for, [Benstz] 1239—ab
- ORTHO-ETHOXY-BENZAMIDE
  - metabolism, [Ducco] 1332—ab
- ORTHOPEDICS
  - pediatrician and hospital in care of child, [Wallace & others] *1607
  - surgery, Residency Review Committee policy, 378—E; (Council article) *382
- OSCILLOMETER
  - clinical improvement parallel, in thromboangiitis obliterans after sympathectomy? 154
- OSLER, Sir WILLIAM (1849-1919)
  - memorial at Oxford, England, 1324
- OSLER-RENDU-WEBER Disease: See Telangiectasia
- OSTEOARTHRITIS: See Joints, degenerative joint disease
- OSTEOARTHROPATHY
  - hypertrophic pulmonary; joint disorders in bronchial carcinoma, [Ricklin] 973—ab
- OSTEOCHONDROSIS
  - deforming, of tibia in children, [Enklaar] 725—ab
- OSTEOMYELITIS
  - tibia regenerate after removing all but epiphyses, 1699
- OSTEOPATHY
  - *medicine relation to,* Judicial Council report, 927
- OSTEOPOROSIS
  - liver effect on bone metabolism in, [Roberts *& Sullivan] *1002*
- OTAGO Medical School, anniversary, N. Z., 705
- OUTPATIENT Service: See Hospitals
- OVARY
  - cancer, Krukenberg tumor diagnosis, [Diddle] 1415—ab
  - cancer, TEM for, [Sykes] 818—ab
  - endometriosis, estrogens after surgery for? 1580
  - estrogen and/or chorionic hormone effects on, Peru, 1233
  - heparin-like action of follicular fluid, [Vecchietti] 722—ab
  - polycystic (bilateral), in Stein-Levanthal syndrome, [Stein] 84—ab
  - surgery, oophorectomy for mestastatic breast cancer, [Pearson & others] *1701
  - surgery, oophorectomy plus adrenalectomy for breast cancer, [Girdwood] 81—ab; [Galante] 716—ab
  - surgery, salpingo-oophorectomy plus hysterectomy for polycythemia with fibroids, [Engel & Singer] *190
  - tumors (virilizing), [Laffargue] 632—ab
- OVIDUCTS
  - apparatus for kymographic uterotubal insufflation, [Rubin] *1190
  - diverticulosis, [Siegler] 1245—ab
  - microbial flora in pyosalpingitis, [Ferraris] 722—ab
  - prolapse into vaginal vault after hysterectomy, [Funnell] 227—ab
  - surgery, Irving ligation; pregnancy possible after? 1078
  - surgery, salpingo-oophorectomy plus hysterectomy for polycythemia with fibroids, [Engel & Singer] *190
- OVULATION
  - androgens for premenstrual dysuria adversely affect? 154
  - benzidine test to detect occult uterine bleeding in, Israel, 704
  - vaginal cycle; review, normal cytology, [Stougaard-Andresen] 523—ab
- OWREN-WARE METHOD
  - to determine prothrombin, [Lehman] 969—C
- OXSORALEN: See Methoxsalen
- OXYGEN
  - deficiency in respiratory infections of childhood, [Morrison] 1693—ab
  - deficiency, signs of, England, 1397
  - *distribution to myocardium in coronary disease,* (color plates), [Beck & Leighninger] *1264
  - for cardiac arrest after electric shock treatment, (replies) [Davis; Brofman] 536
  - for respiratory depression from thiopental, [Dillon & Darsie] *1114
  - in etiology of retrolental fibroplasia, [Truhlsen; Brændstrup] 1165—ab
  - in resuscitation of the newborn, [Tovell & others] *1337
  - poisoning in skin diving, [Burns] *5
- OXYTETRACYCLINE (Terramycin)
  - treatment of amebiasis, [Sappenfield & others] *1009
  - treatment of rheumatic fever, France, 1325
  - treatment, staphylococcic complications, [Brodie] 813—ab
- OXYURIASIS
  - treatment, piperazine, [Sappenfield] 727—ab

P

- PAS: See *p*-Aminosalicylic Acid
- PAIN
  - after anorectal surgery, [Anderson & others] *9
  - cervicobrachial, and posture, [Johnson] *1507
  - diagnostic feature of pancreatic disease, [Berk] *1079
  - facial, therapy and pathogenesis, [Sperling] 144—ab
  - in chest, differential diagnosis, [Banyai] *1272
  - in neck and shoulder, causes and therapy, [Krusen] *1282
  - intractable, morphine and diamino-phenylthiazole for, [Shaw] 526—ab
  - of chronic peripheral arteriopathies, Serpasil plus Doriden for, [Noceti] 728—ab
  - of locomotion in brucellosis; antibrucellar vaccine for, [Verdú] 1154—ab
  - painless childbirth, Soviet method, 1049
  - "precordial catch," neglected syndrome, [Miller & Texidor] *1364
  - referred, knee disability from, [Dittrich] 1794—ab
  - relief during labor in ex-heroin addict, 410

PALATE
  cleft, problem, [Trusler] 1570—ab
PAMINE: See Methscopolamine Bromide
PANCORPHEN
  treatment of multiple sclerosis, [Wilder] 1799—ab
PANCREAS
  aberrant, vs. gastric adenomyosis, [Cimmino] 731—ab
  annular, x-ray diagnosis; surgery for, [Berlin] 1411—ab
  cancer, diabetes in, [Llamas] 1407—ab
  cancer, metastases to liver, [Diagnostic Problems] [Thorpe] *32; (comment) [Elman] *33
  damage in noncalculous biliary disease, surgery for, [Preston] *17
  disease, diagnosis, [Berk] *1079
  disease (fibrocystic), lung signs, [di Sant' Agnese] 86—ab
  excision, glucagon effect after, [Alivisatos & McCullagh] *1098; (correction) 1467
  tumors, glucagon effect on, [Alivisatos & McCullagh] *1098; (correction) 1467
PANCREATITIS
  acute, clinical features, [Bockus] 1061—ab
  chronic relapsing, treatment, [Coffey] 79—ab
  diabetes frequency in, [Llamas] 1407—ab
  fatal, [Healey] 971—ab
PAPILLEDEMA: See Nerves, optic
PAPILLOMA
  of bladder, [Land] 1247—ab
PARA-AMINOSALICYLIC ACID: See *p*-Aminosalicylic Acid
PARAGONIMUS
  westermani infestation in abdominal wall simulating appendicitis, [Kay] *1734
PARALYSIS
  cerebral, etiology, [Denhoff] 719—ab
  cerebral (infantile), glutamic acid for, *[Dragunova] 524—ab*
  cerebral, United Cerebral Palsy Foundation established, 1466
  cerebral, United Cerebral Palsy grants, 1314
  cerebral, where next? [Fuldner] 1246—ab
  of diaphragm, idiopathic, [Wense] 145—ab
  vocal, in children, [Cavanagh] 148—ab
PARANOIA: See Psychosis, paranoid
PARAPLEGIA
  fluorosis causing, India, 1475
PARATHYROID
  adenoma, unusual signs, [Lee] 1571—ab
  tetany, calcium lactate plus vitamin D for, 91
  tetany (postoperative), insensitivity to vitamin D in, [Dent] 1483—ab
PARATYPHOID
  from bakery cream cakes, England, 209
  transverse myelitis after T.A.B. inoculation, [McKelvey] 1490—ab
  typhoid and tetanus toxoid in same injection? 94
PARENOGEN: See Fibrinogen (Human)
PARESTHESIA
  posture and, [Johnson] *1507
PAROTITIS
  Epidemic: See Mumps
  recurrent, in boy 14, etiology, 1700
  recurring, unresponsive to antibiotics and vaccine, 1174
  surgical, vanishing, [Robinson] 1410—ab
PARTNERSHIPS
  in medical teaching and research, 608—E
  malpractice insurance, A.M.A. report, 1658
PATHOLOGY
  practice of, A.M.A. resolutions, 1764
  teaching in U. S. and Sweden, compared, 509
PATIENTS
  care, good; Ontario Hospital Ass'n. convention, 1788
  care improvement, A.M.A. resolution on, 1653
  difficult, [Public Relations] *486
  doctor relationship, [Public Relations] *1382
PAVERIL Phosphate: See Dioxyline Phosphate
PEDIATRICS
  ACTH and cortisone in, [Gans] 1068—ab
  boom in, 1929-1953, 36—E; *(Bureau article)* [Dickinson & Raymond] *41; *119
  pediatrician in care of orthopedically handicapped child, [Wallace & others] *1607
  residency training, A.M.A. resolution, 929
PENICILLIN
  all preparations from Penicillium notatum? 1256
  Benzathine G: See Benzathine Penicillin G
  G in nutritional megaloblastic anemia, India, 1399
  Hydrabamine G: See Hydrabamine Penicillin G
  new, England, 1397
  procaine, in sesame oil; occasional courses sensitize? Danger of cancer from? 1336
  production in India, 1791
  protect against venereal disease? 829
  rheumatic fever recurrence from resistant beta-hemolytic Streptococcus? 1078
  sensitivity, anaphylaxis, [Cruz Hernández] 1248—ab; (fatal) [Andersen] 1680—ab
  sensitivity, death from intrathecal overdose, England, 1791
  sensitivity, desensitization problems, England, 1143
  sensitivity, feasibility of skin test, [Berger & Eisen] *191; [Coleman] 1148—C; [Siegal] 1401—C

PENICILLIN—Continued
  sensitivity in rheumatic fever, 633
  sensitivity in workers producing, [Maffei] 731—ab
  sensitivity reactions, chlorprophenpyridamine maleate to prevent, [Frankel] 1408—ab
  to prevent scarlet fever; release from isolation 24 hours after single injection? 1256
  treatment of bacterial endocarditis after mumps, 633
  treatment of congenital syphilis in children evaluated, [Dembinska-Widy] 1163—ab
  treatment of purulent otogenic meningitis, [Nakamura] 1070—ab
  treatment of scarlet fever; rheumatic heart disease after, [illegible]
  treatment [illegible] before, [de [illegible]
  treatment [illegible] 1166—ab
  treatment plus chlortetracycline in E. coli meningitis in infant, [Gordon & Aronow] *1288
  treatment plus erythromycin in subacute bacterial endocarditis, [Bishop & others] *1730
  treatment plus streptomycin in streptococcal endocarditis, [Hall] 220—ab
  treatment plus sulfonamide, clinical study, [Nissel] 1682—ab
  treatment (preoperative) in syphilis, 1076
PENIS
  edema from rubber urinals, 1424
  indurated corpora cavernosa, treatment, 1255
PENSIONS: See also Retirement
  Ministry of Pensions and National Insurance, 1954 statistics, England, 394
  war pensions, England, 143
PENTAERYTHRITOL TETRANITRATE
  coronary vasodilator, long-acting, [Russek] 820—ab
  treatment of angina, [Kory] 728—ab
PENTAPYRROLIDIN BITARTRATE: See Pentolinium Tartrate
PENTAPYRROLIDINIUM: See Pentolinium Tartrate
PENTHIENATE BROMIDE
  N.N.R., 1299
PENTHRITE: See Pentaerythritol Tetranitrate
PENTOLINIUM TARTRATE
  N.N.R., 1292
  treatment alone or plus hydralazine in hypertension, [Perry] 76—ab
  treatment of hypertension with hemorrhagic retinitis, [Burnett] 1156—ab
  treatment plus Rauwolfia in hypertension, [Persson] 74—ab; (Peru) 509; [Dennis] 1406—ab
PENTOTHAL: See Thiopental
PENTYLENETETRAZOLE
  shock induced by, vitamin B_{12} for, [Becattini] 1414—ab
  treatment (oral) in senility, [Suter] 720—ab
PEPTIC ULCER
  acute, after surgery, [de Ruiter] 1159—ab
  antabuse unfavorably affect? 1174
  aspirin effect on, [Muir] 714—ab
  blood grouping in, England, 1232
  differentiated from stomach cancer, [Sepúlveda] 1238—ab; (uropepsin excretion in) [Gray] 1795—ab
  duodenal, burn complications, [Artz & Soroff] *411
  duodenal, normal stomach response to insulin same as in, [Olson & Necheles] *1013
  etiology; carbon disulfide poisoning, [Kleinfeld & Tabershaw] *677
  etiology: pyloric stenosis, [Rigler] 719—ab
  hemorrhage; differential diagnosis, Belgium, 139
  in Laennec's cirrhosis, [Swisher] 1183—ab
  pyloric channel ulcer, [Ruffin & others] *668
  surgical treatment, [Blixenkrone-Møller] 82—ab, (scientific exhibit) [Dragstedt] follows 1700
  surgical treatment; dumping syndrome after, [Weiss] 225—ab
  surgical treatment, gastrectomy, [Welti] 971—ab
  surgical treatment, gastrectomy; intestinal metaplasia at pylorus after, England, 393
  surgical treatment, gastrectomy; sideropenia, anemia and postcibal symptoms after, [Wallensten] 815—ab
  surgical treatment plus vagotomy in duodenal type, [Holt] 81—ab; [Hoerr] 224—ab; [Oberhelman] 716—ab; [Henson] 1065—ab
  treatment of duodenal type, methscopolamine bromide; effect on gastric secretion, [Rider & others] *1085
  treatment, parenteral methscopolamine bromide, N.N.R., 1635
PERCORTEN: See Desoxycorticosterone
PERICARDITIS
  adhesive, course and treatment, [Libov] 1162—ab
  cholesterol, pericardiectomy for, [Creech] 973—ab
  constrictive, surgery for, (Italy) 211; [Wu Ying-K'ai] 223—ab
PERIODICALS: See Journals
PERITONEUM
  fluid cytology, [Childers] 1696—ab

PERITONEUM—Continued
  shunts for hydrocephalus and increased intracranial pressure, [Jackson] 405—ab
  Tuberculosis: See Peritonitis, tuberculous
PERITONITIS
  tuberculous, diagnosis, [Gropp] 1057—ab
  tuberculous, of childhood, isoniazid in, [Shukry] 86—ab
PERITRATE: See Pentaerythritol Tetranitrate
PERMANGANATE: See Potassium permanganate
PERMAPEN: See Benzathine Penicillin G
PERSONALITY
  problems and health conseling, school conference discusses, 1125—E; 1126
PERUVIAN
  Congress of Sanitary Engineering, first, 211
  government proposes sociomedical insurance for employees, 1145
  psychiatric journeys (2nd), 509; (schizophrenia and apoplexy symposia) 1476
PETHIDINE: See Meperidine
PETROLATUM
  liquid, lipoid pneumonia from, [Meyers] 150—ab
PEYRONIE'S *Disease*: See Penis
PHARMACEUTICALS: See Drug
PHARYNX
  tumors, fibroma, [Christiansen] 1417—ab
PHEMEROL CHLORIDE: See Benzethonium Chloride
PHENACEMIDE
  toxicity fatal in epilepsy, [Craddock] *1437
PHENINDIONE
  treatment of acute myocardial infarction, [Breneman] 72—ab
  treatment of coronary thrombosis with myocardial infarction, [Wood & others] *635
PHENOBARBITAL
  treatment plus, Dilantin in epilepsy, blood cell count after, (reply) [Peterman] 980
PHENOXYBENZAMINE
  treatment plus Rauwolfia in hypertension, [Moyer] 220—ab; (plus protoveratrine) [Waldron] 1794—ab
PHENTOLAMINE
  in diagnosis and management of pheochromocytoma, *[Helps] 970—ab*
PHENURONE: See Phenacemide
PHENYLALANINE
  metabolism in phenylpyruvic oligophrenia, *[Ferrari] 1160—ab*
PHENYLBUTAZONE
  toxicity, [Mauer] 1248—ab
  toxicity: anuria fatal, [Toussaint] 526—ab
  toxicity: hepatic necrosis and visceral lesions, [McCarthy] 729—ab
  treatment plus aminopyrine in gout, [Koller] 821—ab
  treatment plus aminopyrine in rheumatic fever; side-effects, [Falk] 149—ab
2-PHENYLCHROMONE
  coronary dilator, [Ferrari] 408—ab
PHENYLETHYLACETIC ACID
  antiatherogenous? [Cottet] 514—ab
PHENYL-ETHYL-METHYL-HYDANTOIN
  dumping syndrome blockade with, [Dyk] 74—ab
PHENYLINDANDIONE: See Phenindione
PHENYL-PIPERIDYL-2-ACETIC ACID METHYL ESTER
  treatment plus Serpasil in hypertension, [Esseilier] 1071—ab
3-(1-PHENYLPROPYL)-4-HYDROXYCOUMARIN
  thromboembolism prevented with, [von Brandis] 79—ab; [Röttger] 523—ab
  treatment, prothrombin-proconvertin activity in, [Iversen] 820—ab
PHENYTOIN: See Diphenylhydantoin Sodium
PHEOCHROMOCYTOMA
  diagnosis and treatment with phentolamine, [Helps] 970—ab
  malignant, with metastases, [Davis] 971—ab
  masked, diagnosis, [Mandl] 81—ab
  massive abdominal, [Colcock] 1159—ab
PHLEBITIS
  during menstruation, Turkey, 968
  of legs, new sign, [Ortiz-Ramirez] 1060—ab
  748 cases, [Byrne] 1408—ab
PHLEBOTOMY: See Venesection
PHOSPHATASE
  serum acid, tests, [Ozar] 726—ab
PHOSPHORUS
  diet low in for phosphocalcic urinary lithiasis, [Génot] 525—ab
  radioactive, for giant follicular lymphoma, [Desgrez] 529—ab
  radioactive, for polycythemia vera, (England) 393; (effect on platelet count) [Tubiana] *529—ab*
PHOTOGRAPHY
  in operating rooms with electronic flash attachment? 152
PHYSICAL EXAMINATION
  periodic, appraisal, [Bolt] 1493—ab
PHYSICAL MEDICINE
  doctor of, as diagnostician, [Blau] *554
  importance of diagnostic methods in, [Schmidt] *1175
PHYSICAL THERAPY
  schools for, *604

PHYSICIANS
as health officers, Sweden, 1326
avocations, art show, Calif., 1463
avocations, doctors on the screen, (Leisure Corner) [Spears] *1402
avocations, medical poetry, [Leisure Corner] *512
avocations, orchestras, (Calif.) 1129; (N. Y.) 1220; (Brooklyn) 1312
avocations, picnickery, [Leisure Corner] *71
avocations, sports; request information, [Ryan] 1032—C
avocations, writing, [Leisure Corner] 1053
Chamber of Commerce and, [Dessen] *1441
children of, urge vaccination, Norway, 1675
civilian, and future security, [Ravdin] *1109
compensation patient relation to, [Nicholson] *642; (A.M.A. recommendations on selection) 1653
Deaths: See list of Deaths at end of letter D
ethical to advertise office in building lobby? 686
foreign, A.M.A. report on, 934
foreign interns and residents, *257
heal thyself, [Gordon] *1150
hospital relations, A.M.A. report, 936
in Israel, U. S. surgeons confer with, 705
in N.H.S., annual report, England, 1231
income, 1929-1953, 36—E; (Bureau article) [Dickinson & Raymond] *41; *119
industrial, education for, 1742—E
"is there a doctor . . . ?" [Gordon] *1402
Italian, in U. S.; request information on [Galdston] 1676—C
legal responsibility in hospitals, England, 1231
liability insurance, A.M.A. report, 1657
N.H.S. inspection of premises, England, 803; 1397
night emergency calls, [Public Relations] *486
of Iowa, A.M.A. resolution commending, 1766
on Queen's Birthday Honor List, England, 66
patient relationship, [Public Relations] *1382
placement, Sears-Roebuck Foundation assistance, 37—E; 38; [Business Practice] *1481
Placement Service, A.M.A. report, 937
pocket medical kit, [Barnett] *1451
Polish, studies in Switzerland, 511
practicing, family physician in preventive psychiatry, [Braceland] *1187
practicing, general practitioner and discharged mental patient, [Appel & Scheflen] *1278
practicing, General Practitioner's Award to E. R. Samuel, 1459—E; 1642; 1644
practicing, general practitioners' graduate programs, *599
practicing, general practitioner hospitals, A.M.A. resolutions on recognizing, 1767
practicing, general practitioner hospitals, Ireland, 1563
practicing, general practitioners' right to work in hospitals, England, 66
practicing in physical medicine, as diagnosticians, [Blau] *554
practicing, sick and disabled; Dr. Adolph Gehrmann's fund to aid, 128
practicing, specialist vs. general practitioner for acne, guest editorial by Dr. Rothman, 1124—E; (reply) [Mecklin] 1676—C
public attitudes about, [Public Relations] *686
public health, in occupational health problems, [Warren] *1581
public relation problems, (Public Relations) [Askey] *1551
reimburse colleague for personal medical care from health insurance? 686
responsibility to medical organizations, [Fox] *544
role in encouraging traffic safety, [Public Relations] *487
role in premarital advice, [Greenhill] 398—C
role in preventing poisoning in childhood, [Carithers] *109; (Council report) [Arena] *1537
role in vaccination for travel, 852—E; [Miller] 1478—C
schools and, A.M.A. sponsors conference on, 611; 1125—E; 1126
separated from military service, survey, (Council article) 1306
services, totality of, A.M.A. report, 924
should he report suspected criminal poisoning? 1499
social planners relation to, [Knutson] *1054
social security coverage, A.M.A. reports, 1302—E; 1650; 1656; (President Hess' page) 1744
staff, interpret electrocardiograms of their own patients? 684
strike against proposed general social security, Austria, 800; 1045
unemployment, England, 1790
veteran, propose town of prefabricated houses for retiring doctors, [Peters] 398—C
veteran, retirement association, Calif., 1553
widows and children, survivorship benefits, 1636—E
women, marriage-career views, 1134
PHYSICS
medical, propose A.M.A. Council on, 1651
PICNICKERY: a science, [Leisure Corner] *71
PIGMENTATION
cause of, in face and trunk in chronic lung disease [illegible]
PINWORM Infection: See Oxyuriasis
PIPERAT Tartrate: See Piperazine Tartrate
PIPERAZINE ADIPATE
treatment of ascariasis in children, [Hanna] 976—ab
PIPERAZINE CITRATE
N.N.R., 194
treatment of enterobiasis, [Sappenfield] 727 —ab
PIPERAZINE HYDRATE
treatment of ascariasis, [Brown] 1575—ab
PIPERAZINE TARTRATE
N.N.R., 194
PITRESSIN: See Vasopressin Injection
PITUITARY
apoplexy, surgery for amblyopia in, [Shenkin] *1622
changes in cryptorchism, N. Z., 396
hypopituitarism with hyperlipemia and xanthomas, [Zöllner] 819—ab
in Houssay phenomenon, 1124—E; [Brenner] 1152—ab
surgery, hypophysectomy for cancer; adrenal insufficiency after, (reply) [Mellinger] 738
surgery, hypophysectomy for malignant edematous exophthalmos, [Albeaux-Fernet] 1695 —ab
surgery, hypophysectomy for metastatic breast cancer, [Pearson & others] *1701
surgery, hypophysectomy for severe diabetes, England, 803; [Luft] 1243—ab; 1324
surgery, hypophysectomy; metabolic response, [Mason] 1413—ab
surgery, hypophysectomy; thyroid function after, [Li] 1409—ab
tumors, giant; psychological changes with, [White] 1413—ab
PLACEBO
definitions; indications, 780—E
drug appraisal; use of double-blind control, [Ross] 624—C; 780—E
in evaluating Metamine in angina pectoris, [Fuller & Kassel] *1708
in evaluating salicylamide, [Batterman & Grossman] *1619
in multiple sclerosis, [Tschabitscher] 144—ab
powerful, [Beecher] *1602
PLACEMENT: See Physicians
PLACENTA
conditions as cause of perinatal death, [Gold] *244
implantation, Filatow method, [Holkup] 1068 —ab
previa accreta, 2 cases, Turkey, 806
therapy in seborrhea sicca and eczema of nursling, [Santyan y Velasco] 1416—ab
therapy in skin diseases and old age, Italy, 1144
tumors, hydatiform mole care after dilatation and curettage, 736
tumors, syncytioma malignum, Turkey, 1148
PLANING
rotary abrasion to remove acne scars and other defects, [Eller] 726—ab; (A.M.A. Committee report) [Rattner & Rein] *1299; 1303—E
PLANNED PARENTHOOD *Federation of America* role in premarital advice, [Greenhill] 398—C
PLASMA
of inhabitants of high altitudes stimulates erythropoiesis, Peru, 1146
PLASTICS
in arterial prostheses, [Poth] 1573—ab
Ivalon prosthesis in breast and soft tissue surgery, [Pangman] 818—ab
PLEURA
empyema complicating prolonged use of cortisone in arthritis, 410
fluid cytology, [Childers] 1696—ab
PLEURISY
chyliform, Turkey, 1147
parapneumothorax, hydrocortisone for, [Sartori] 1167—ab
tuberculous, with effusion, [Myers] 811—ab
PNEUMONECTOMY: See Lungs surgery
PNEUMONIA
congenital, [Schaffer] 145—ab; [Schaffer & others] *663
interstitial plasma cell, in premature infants, [Laursen] 1246—ab
lipoid, from mineral oil, [Meyers] 150—ab
treatment, tetracycline, [Bakir] 1678—ab
unspecific, differentiated from bronchial carcinoma, [Kesztele] 515—ab
uremic pneumonitis, mechansim, 1700
PNEUMONOCONIOSIS
asbestosis and bronchial cancer, Switzerland, 1050
bilateral, with emphysema and dyspnea, 1500
diffuse interstitial, [Sloper] 1155—ab; (in rheumatoid disease) [Rubin] 1680—ab
disabling, from limestone dust, [Doig] 1168 —ab
occupational, biopsy to diagnose, [van Ordstrand] 528—ab
occupational, vascular pathology, [Schepers] 528—ab
silicosis, 1254
silicosis in ironworks, England, 1474
treatment, prednisone, [Bickerman] 1166—ab
PNEUMOPERITONEUM
treatment of tuberculosis, Turkey, 143
PNEUMOTHORAX
after thorax injuries, [Blades] *419
spontaneous, management, [*Marrangoni*] 1062 —ab
PNEUMOTHORAX, ARTIFICIAL
after isoniazid with streptomycin or PAS for tuberculosis, [Véran] 516—ab
extrapleural, and thoracoplasty in tuberculosis, [Rabino] 627—ab
resection with, compared to primary segmental resection for tuberculosis, [Marmet] 80—ab
status in tuberculosis, 1076
PODOPHYLLIN
treatment of condyloma acuminatum, 536
POETRY
medical, [Leisure Corner] *512
"With penicillin, sulfas, and . . ." [Ross] 70—C
POISONING
accidental, National Safety Council Certificate to A.M.A. Committees for work on, 781—E
buckwheat: fagopyrism, 1336
coal gas, England, 1047
criminal, suspected; should physician report? 1499
Food: See Food poisoning
gentle art of, use by Jews, [Leibowitz] 397—C
in Children: See Children
Industrial: See Industrial Dermatoses; Industrial Diseases
lye, (Council report) [Arena] *1537; 1541—E
recommend Oblivon be classed as, England, 804
sodium fluoroacetate fatal, [Brockmann & others] *1529
test for Doriden, [Sheppard] 1052—C
POLIOENCEPHALITIS
superior hemorrhagic, in hyperemesis gravidarum and in stomach cancer, [Verhaart] 226—ab
POLIOMYELITIS
acute anterior, and twinning, [Dadone] 521 —ab
acute, in infants, [Abramson] 1330—ab
antibodies, (Belgium) 62; (*in gamma globulin*) [Opton] 1414—ab
Coxsackie B virus infection distinguished by tissue culture, [Kirby & Evans] *743
European Association Against, 3rd symposium, 1234
fight against in Belgium, 62
immunity, (Sweden) 805; (Uruguay) 1326; (in Western Australia) [Snow] 1573—ab
in Idaho, vaccination-induced, [Peterson & others] *241
in pregnancy, [Bergquist] 1490—ab
in pregnancy, fetus and newborn, [Bates] 974—ab
in Stockholm area, 1953, [Ström; Dagulf] 1066—ab
infection among contacts, [Horstmann] 1244 —ab
muscle innervation regeneration in, [Wohlfart] 1066—ab
prevalence, England and Wales, 803
prevalence, U. S., *54; 132; 201; 387; 497*
season, WHO report, 1050
tonsillectomy and, [Medical Research Council] 521—ab
treatment, respirator, (Finland) 394; (iron lung for children) [Stenger] 719—ab
vaccination, (Denmark) 504; (Canada) 1563
vaccination, why in winter? 735
vaccination, WHO Study Group report, 1780
vaccine (Salk) distribution, A.M.A. resolution on, 1022; 1758; 1761
vaccine (Salk) influence on poliomyelitis in N. C., [illegible]
vaccine [illegible] break in Idaho from, [illegible] 1
vaccine [illegible] [Abelson & others] *238
vaccine (Salk), 2nd injection, *1303—E*
vaccine (Salk), single-syringe-multiple-needle cause hemologous jaundice? (reply) [Eisenstaedt] 1500
vaccine (Salk), *USPHS, 136; 796; 1041;* (Technical Committee report) [Bodian & others] *1444; (progress report) [Anderson] *1522
vaccine trials, England, *394*; 1144
virus types in Western Germany, [Lennartz] 975—ab
viruses, chimpanzee-avirulent; experimentally infected volunteers, [Sabin] *521—ab*
WHO Regional Laboratory at Hadassah Medical School, 395
POLIOMYELITIS IMMUNE GLOBULIN (Human)
A.M.A. resolution on, 1652
N.N.R., 194
POLLENS
allergy, ulcerative colitis from, [Rowe] 1240 —ab
POLYARTHRITIS: See Arthritis, Rheumatoid
POLYCYTHEMIA
obesity with, [Weil] *1592
uterine fibroids with, [Engel & Singer] *190; [Sinclair] 1052—C
vera, P^{32} for, (England) 393; [Tubiana] 529 —ab
POLYGLOBULISM: *See Polycythemia*

POLYPS
  in colon, bowel function after colectomy for, [Lillehei & Wangensteen] *163
  in colon, colotomy and coloscopy for, [Deddish] 1691—ab
  in large intestine, preserve terminal segment, [Smith] 1690—ab
POPLITEAL SPACE
  desmoid tumor during pregnancy, [Ober] 1415—ab
PORPHYRIA
  clinical features, [de Mello] 517—ab
  inheritance, [Dean] 712—ab
PORTAL VEIN
  circulation, Au^tos to study, Austria, 392
  decompression in liver cirrhosis, [Plough] 1488—ab
  decompression, surgical aspects, [Hughes] 1488—ab
  hypertension, bleeding esophageal varices in, 484—E; (reply) [Bixby] 1480—C
  hypertension improves with sodium restriction for liver cirrhosis, [Davidson] *1257
  hypertension in infants and children, [Hsia] 1162—ab
  hypertension, sclerosing agents for esophagus varices, [Macbeth] 1572—ab
  hypertension, surgery for, [Uglov] 1412—ab
  pressure measurement, (by liver puncture) [Lemaire] 719—ab; (by intrasplenic pressure, Brazil) 964
  roentgen study, percutaneous splenoportography; spleen hemorrhage after, [Catalano] 624—C
  surgery, intrasplenic pressure to evaluate, [illegible] 1411—ab
on, 50th anniversary, 65
Medical
Surgery
  cervicobrachial pain and, [Johnson] *1507
  "precordial catch" relation to, [Miller & Texidor] *1364
POTASSIUM
  iodide of iodized salt aggravate tuberculosis; counteract PAS? 234
  permanganate, vaginal burns from, [St. Romain] 406—ab
  salt of PAS for kidney tuberculosis? 153; (reply) [Molthan & others] 1804
PRACTICE of Medicine: See Medicine, practice; Physicians, practicing
PRAMOXINE HYDROCHLORIDE
  N.N.R., 1293
PRECEPTORSHIPS
  programs, schools offering, 1954-1955, *580
PRECORDIUM
  "precordial catch," neglected syndrome, [Miller & Texidor] *1364
PREDNISOLONE (Meticortandralone)
  N.N.R., 1298
  treatment of lupus erythematosus, [Bollet & others] *1501
  treatment of osteoarthritis, [Cohen & others] *1727
  treatment, progress report, [Spies & others] *645; [Pestel] 1418—ab
PREDNISONE (Meticortandracin)
  [de Gennes] 1485—ab
  effects on rat, Switzerland, 1147
  N.N.R., 1298
  [illegible] 1166—ab; [Bickel] 1249
hrosis and
1167—ab;
matism in
[Bollet &
  others] *1501
  treatment of pulmonary emphysema and fibrosis, [Bickerman] 1166—ab
  treatment of thrombopenic purpura after labor, 979
  treatment, progress report, [Spies & others] *645
PREECLAMPSIA: See Eclampsia
PREGNANCY
  anticoagulants during, fetal damage from, England, 1047
  carbon monoxide poisoning during, cause bleeding or fetal death? 1172
  complications: absence of left diaphragm, [Williams] 1161—ab
  complications as cause of perinatal death, [Gold] *244
  complications: breast cancer, [Firpo] 818—ab
  complications: desmoid tumor of popliteal space, [Ober] 1415—ab
  complications: diabetes, (A.M.A. report) 901; [Jackson] 1329—ab
  complications: diabetes, estrogens for, 1563; [Reid] 1692—ab
  complications: epilepsy (idiopathic), [McClure] 721—ab
  complications: fibrinopenia, [Barry] 817—ab
  complications: hereditary optic atrophy with pigment degeneration, interrupt for? 1172
  complications: horse serum reaction; cortisone harmful? 634
PREGNANCY—Continued
  complications: hypertension, fetal mortality, —ab
of mental deficiency
& Lilienfeld] *155
  complications: inguinal hernia, surgery for, 1256A
  complications: leukocyte resistance increased by stilbene, Switzerland, 1477
  complications: poliomyelitis, [Bates] 974—ab; [Bergquist] 1490—ab
  complications: rubella; fetal malformation after, [Clément] 1067—ab; [Brawner] 1245—ab
  complications: thrombotic thrombopenic purpura, [Miner] 1067—ab
  cortisone effects on, in animals and women, Switzerland, 212
  diet in; prematurity relation to, [Jeans] 85—ab
  ectopic: cervical, [Cummin] 721—ab
  ectopic: partial intraligamentary, proceeding to term, [Best] 1161—ab
  employment effects on, England, 1790
  hemoglobin standards differ from infants or adults? 1174
  hypnosis in, [De Lee] *750
  insulin coma therapy without harm to mother or child, [Luhan & Tuteur] *1112
  normal and toxemic, effect on blood pressure, [Tillman] 1067—ab
  possible after Irving tubal sterilization? 1078
  toxemia in etiology of hypertension, [Schreier & others] *105
  toxemia (preeclamptic), hypotensive agents in, [de Alvarez] 522—ab
  vomiting in, superior hemorrhagic polioencephalopathy with, [Verhaart] 226—ab
  x-rays injure fetus? 1174
PREMEDICAL: See Education, Medical, preprofessional
PRENATAL Injuries: See Labor; Medicolegal Abstracts at end of letter M
PREOPERATIVE: See Surgery
PRESS
  DeVries (Julian) honored by county medical society, [Public Relations] *1775
  relations, "let British babies have two heads," [Gordon] *1677
  relations of A.M.A., report, 885
PREVENTIVE MEDICINE
  Conference of Professors reorganized, 959
  department at U. of Vermont, 790
  in industry, A.M.A. Council report, 909
  International Congress of Prophylactic Medicine (4th), 132
PRICE INDEX
  medical care, 1929-1953, 36—E; (Bureau article) [Dickinson & Raymond] *41; *119
PRIMAQUINE
  to prevent malaria, alone or with amodiaquin, India, 1399
PRIMIDONE
  N.N.R., 1293
PRIODAX: See Iodoalphionic Acid
PRIVILEGED COMMUNICATIONS: See also Medicolegal Abstracts at end of letter M
  moral and social value, Belgium, 1673
PRIZES
  American College of Chest Physicians essay contest, 1780
  American Congress of Physical Medicine and Rehabilitation, 1557
  A.M.A. Distinguished Service Award, request nominations, 879
  A.M.A. General Practitioner Award to E. R. Samuel, (portrait) 1459—E; 1642; 1644
  American Medical Writers' Ass'n. Honor Award to *A.M.A. Archives of Surgery*, 1028
  American Pharmaceutical Manufacturers' Ass'n. 1387
  American Trade Ass'n. (Grand Award to Michigan State Medical Society) 52; (Distinguished Service Award) 198
  Amory prizes, 1668
  Atomic Energy Commission Awards, 1465
  Billings Gold Medal, scientific exhibit on esophagitis, [Schmidt & others] follows 1256
  Borden Nutritional Award, 1666
  Bryant (Lane) Annual Awards, 1667
  Capps (Joseph A.), in medical research, 691
  Casselberry, 1466
  Chibret Gold Medal for trachoma essay, 693
  Chicago Federation Advertising Club Award to A.M.A. television program, 921
  Chilean Iodine Educational Bureau Award, 1223
  Ciba Geriatrics Awards, 1466
  Cross of Legion of Honour (French) to Dr. Lapeyre, 955
  Crumbine (Samuel J.), first annual award, 1668
  Dearholt Medal, 1131
  Goldberger Award, 905
  Gorgas Medal, 1391
  Howe (Lucien) Medal, 1220
  Hughes (Charles Evans) Award, 1132
  Hunter (Oscar B.) Memorial, 1466
  Joy (Milton R.) Memorial Award, 1778
  Lahey (Frank H.) Memorial Award to Herbert Hoover, (photo) 1217
PRIZES—Continued
  Lalor Foundation Awards, 1387
  Lasker (Albert) Awards, 1668
  Lebanese Republic Citation and Medal of Knight of the Order of Cedars, 1313
  Lederly Medical Faculty Awards, 200; 614
  Longacre (Raymond F.) Award, 793
  Lyon (Will F.), first award, 1384
  Lyster (Theodore C.) Award, 792
  Maricopa County Medical Society to Writer, Julian DeVries, [Public Relations] *1775
Award, 1385
Awards, 1135
an) Award, 789
dical Society Distin-
d, 1311
or Infantile Paralysis
Awards
  National Medical Ass'n., Distinguished Service Award and General Practitioner of the Year, 1315
  National Safety Council's Certificate to A.M.A., Committees, 781—E
  National Society for Medical Research to airline, 1780
  Northwestern Founders' Day Awards, 1777
  Order of Merit of Carlos Finlay, 1776
  Osborne and Mendel Award, 958
  Osler (William) Medal, 1556
  Philadelphia Pediatric Society, 1667
  Philip (Sir Robert) Medal, England, 64; 209
  Phillips medal, 1554
  Pittsburgh Surgical Society, first annual award, 494
  Rush (Benjamin) Award for laymen in public health, 130
  Schuman (Mr. & Mrs. Henry) for medical history essay, 1779
  Stengel (Alfred) Memorial, 1464
  Trudeau Medal, 496
  Tuttle (Arnold D.) Award, 793
  United Cerebral Palsy-Max Weinstein Award, 1554
  U. S. Air Force Awards, 1138
  U. of Rochester Medical Alumni Ass'n. Gold Medal, N. Y., 1555
  Van Meter Award, 1223
  Western Orthopaedic Ass'n. trip to Hawaii, 1553
PRO-BANTHINE BROMIDE: See Propantheline Bromide
PROCAINE AMIDE HYDROCHLORIDE
  for controlled hypotension, [Matturro] 1567—ab
PROCAINE HYDROCHLORIDE
  epinephrine with, anesthesia for adult circumcision, [Light & others] *31
  hyaluronidase with, anesthesia in peroral endoscopy, [Adler] *111
  inject into stellate ganglion for hemiplegia, India, 1398
PROCONVERTIN
  prothrombin and, activity; micromethod determination during anticoagulants, [Iversen] 820—ab
PROGESTERONE
  treatment plus estrogens (Zondek) for secondary amenorrhea, [Lange] 1068—ab
PROMIN Sodium: See Glucosulfone Sodium
PROMIZOLE: See Thiazolsulfone
PRONESTYL: See Procaine Amide Hydrochloride
PROPANTHELINE BROMIDE
  effect on gastric motility and pyloric function, [Barowsky] 526—ab
  effects on tension and pupil size in normal and glaucomatous eyes, [Mody & Keeney] *1113
  N.N.R., 1291
PROPRIETARIES
  capital value, England, 1398
  Norway's safeguards, 967
PROPYLTHIOURACIL
  goiter in a newborn from mother's ingestion of, [Aaron & others] *848
PROSTATE
  biopsy, transrectal, [Grabstald] 1164—ab
  cancer, clinical and steroid metabolic study, [Birke] 525—ab
  cancer, diethylstilbestrol for, [Flocks] 1575—ab
  cancer, estrogens and/or castration for, Italy, 211
  cancer, estrogens effect on testes in, Austria, 699
  cancer, hydrocortisone for bone metastases, [Gilbert-Dreyfus] 1061—ab
  cancer, serum acid phosphatase test in management, [Ozar] 726—ab
  prostatovesiculitis, Denmark, 1789
  surgery, removal in man 53; suprapubic vs. transurethral approach, 535
  surgery, resection, testosterone for loss of potency after? 1699
  surgery, retropubic prostatectomy, indications and results, [Nelson] 525—ab
PROTEIN
  high diet in coronary atherosclerosis, [Morrison] *1425
  malnutrition and kwashiorkor [illegible] 1059—ab
PROTHROMBIN: See Blood [illegible]rothrombin

- PROTOVERATRINE
  - treatment of preeclamptic toxemia, [de Alvarez] 522—ab
  - treatment plus Rauwolfia in hypertension, [Moyer] 220—ab; (plus phenoxybenzamine) [Waldron] 1794—ab
- PROTOVERATRINE A AND B MALEATES
  - N.N.R., 440
  - treatment of hypertension, [Tricot] 230—ab
- PROVELL Maleate: See Protoveratrine A and B Maleates
- PRUNES
  - prune whip with *yogurt for constipation*, [Ferrer] 1240—ab
- PRURITUS
  - anal, after anorectal surgery, [Anderson & others] *9
  - treatment, alseroxylon, [Ferrara] 228—ab
- PSEUDOMONAS
  - aeruginosa causes pyemia in burned children, Peru, 1145
- PSITTACOSIS
  - Denmark, 1143
  - infection from parakeet, [Heggø] 517—ab
- PSORIASIS
  - Biological Sciences Foundation requests literature, 1466
  - chemical analysis of scales; metabolic disorder or lipodystrophic? 735
  - psychogenic origin, France, 67
  - treatment, aminopterin, [Rees] 725—ab
- PSYCHIATRY
  - general practitioner and discharged mental patient, [Appel & Scheflen] *1278
  - night-treatment at Montreal hospital, 1563
  - Peruvian *Psychiatric Journeys*, 2nd, 509
  - preventive, present status, [Braceland] *1187
  - sleep treatment in, Brazil, 1045
- PSYCHOLOGY
  - changes in pituitary neoplasms, [White] 1413—ab
  - licensure or certification of psychologists, A.M.A. report, 917; 1662
  - of the handicapped, need for study, Belgium, 964
  - processes in ulcerative colitis, [Engel] 1058—ab
  - reactions in mass casualties, [Caveny] *427
- PSYCHONEUROSES
  - treatment, chlorpromazine, [Silverman] 1490—ab
- PSYCHOSIS
  - complications: convulsions; reserpine for, [Barsa] 405—ab
  - *Diagnostic Problems [Plimpton & Gambino]* *671; (comment) *673
  - from Rauwolfia, [Schroeder & Perry] *839; [Kass & Brown] *1513
  - methyl pentynol causes, England, 1232
  - paranoid, in arthritic woman, 45; meperedine or menopause cause? 979
  - treatment, drugs injected into brain, England, 1789
  - treatment, Frenquel, [Rinaldi] 1799—ab
- PSYCHOSOMATIC DISEASE
  - psoriasis, France, 67
- PSYCHOSURGERY: See Brain surgery
- PSYCHOTHERAPY
  - condemn invasion by lay therapists, Switzerland, 1051
  - for ulcerative colitis, [Head] 817—ab
- PUBERTY: See Adolescence
- PUBLIC HEALTH: See Health, public
- PUBLIC RELATIONS
  - A.M.A. Department of, report, 885
  - attitudes about physicians and medical care, [Public Relations] *686
  - difficult patients, [Public Relations] *486
  - doctor-patient problems, *1382
  - doctors honor newsman; secrecy of assistants, [Public Relations] *1775
  - encouraging traffic safety, [Public Relations] *487
  - national medical conference (8th), 1216; *1381; (Dr. Murray's address) 1547
  - night emergency calls, [PRoblem Corner] *486
  - physicians' problems, [Askey] *1551
  - problems of medical society investigation of rest homes, [Public Relations] *687
  - Tacoma program in obstetric anesthesia, [Bonica & Mix] *551
  - Tennessee Woman's Auxiliary school health contest, [Public Relations] *1381
  - what's ahead for American medicine, [Murray] *1547
- PUERPERIUM
  - hemorrhage, hypothermia for, England, 1143
- PULMONARY VALVE
  - atresia, direct vision surgery for, [Lillehei] 1241—ab
  - stenosis with intestinal carcinoid; tumor produce serotonin? [Carlsen] 223—ab
  - stenosis with left-to-right ventricular shunt, [Contro] 1241—ab
- PULSE
  - pulseless disease, [Trias de Bes] 1794—ab
  - pulsus alternans, effect of congestive failure on, [Ryan] 970—ab
- PUPILS
  - propantheline bromide effect on size in normal and glaucomatous eyes, [Mody & Keeney] *1113
- PURPURA
  - non-thrombopenic, surgery for, [Muldoon] 1797—ab
  - painful bruising with, after autoerythrocyte sensitization in women, [Gardner] 712—ab
  - renal (unilateral), with clot formation simulating tumor, [Zellermayer] 1164—ab
  - Schönlein-Henoch, compared to nephritis and rheumatism, [Lewis] 408—ab
  - Schönlein-Henoch, with purpura simplex; ACTH, cortisone, and antihistaminics for, [Wald & Kissin] *29
  - thrombopenic, after labor; treatment, 979
  - thrombopenic, after massive whole blood transfusions, [Krevans & Jackson] *171; [Hyman] 1480—C
  - thrombopenic, and giant hemangioma in infants, [Good] 1161—ab
  - thrombopenic, from quinine allergy, Turkey, 1147
  - thrombopenic (idiopathic), ACTH or cortisone for, M.R.C. report, 1046; [Witts] 1071—ab
  - thrombopenic, saccharin cause? 93
  - *thrombopenic (thrombotic)*, in pregnancy, [Miner] 1067—ab
- PYELONEPHRITIS
  - chronic brucellar, simulating tuberculosis, [Abernathy & others] *1534
  - treatment of recurrences, [Blegen] 1485—ab
- PYEMIA: See Septicemia
- PYLORUS
  - function, anticholinergic effect of pro-banthine on, [Barowsky] 526—ab
  - metaplasia after gastrectomy, England, 393
  - stenosis and gastric ulcer, [Rigler] 719—ab
- PYOSALPINGITIS: See Oviducts
- PYRAMIDON: See Aminopyrine
- PYRIBENZAMINE: See Tripelennamine Hydrochloride
- PYRIDOSTIGMINE
  - treatment of myasthenia gravis, [Lønnum] 1167—ab
- PYRIDOXINE HYDROCHLORIDE
  - use in medical practice, (Council report) [Vilter] *1210
- PYRIZIDIN: See Isoniazid
- PYURIA
  - etiology, treatment, 1424

Q

- Q FEVER
  - first case in Sao Paulo, Brazil, 621
- QUARTERLY CUMULATIVE INDEX MEDICUS: See American Medical Association
- QUEEN'S Birthday Honor List, physicians on, England, 66
- deQUERVAIN'S DISEASE
  - treatment, hydrocortisone, [Makin] 729—ab
- QUINACRINE
  - treatment of chronic lupus erythematosus, [Stoughton] 87—ab
  - treatment of teniasis, 233; (by duodenal catheter, Turkey), 623
- QUININE
  - excretion in determining gastric acidity [Boersma] 1407—ab
  - toxicity, thrombocytopenic purpura from, Turkey, 1147
- QUINOLINE: See Chloroquine
- QUOTANE: See Dimethisoquin Hydrochloride

R

- RABIES
  - endemic in Calif., 1383
  - in animals increasing, Calif., 688
  - problem in Latin America except Uruguay, 140
- RACES: See also Negroes
  - factor in etiology of mental deficiency, [Pasamanick & Lilienfeld] *155
- RADIATION
  - dangers in diagnostic radiology, [Schwarz] 1480—C
  - sickness after I^{131} therapy, [Abbatt] 823—ab
  - therapy of cancer, [Fletcher] 151—ab
  - therapy of hemangioma, [Pfahler] 1694—ab
  - therapy plus vitamin K for cancer, England, (breast and bronchus) 394; (lung) 803
- RADIO
  - ambulance 2-way radiotelephony, England, 66
  - A.M.A. Bureau activities, 921
  - magnetic call system in London hospital, 1325
  - oldest medical program, N. Y. 1666
- RADIOACTIVE
  - cesium treatment, England, 1325
  - Cobalt: See Cobalt, radioactive
  - fall-out effects on man, [Cronkite & others] *430
  - Gold: See Gold, radioactive
  - hazards in industry, [Warren] *1581
  - Iodine: See Iodine, radioactive
  - isotope brain test rejected, England, 1565
  - isotope labelled red cells to show incompatibility, [Mollison] 528—ab
  - isotope techniques for mediastinal tumors, [Swedenburg] 1065—ab
  - isotope techniques, training residents in, [Childs] *541
  - isotopes (cyclotron-produced), Atomic Energy Commission discontinues, 205
  - Phosphorus: See Phosphorus, radioactive
  - *sodium radio-chromate (Cr^{51}), N.N.R., 1209*
- RADIO-GOLD (Au^{198}) COLLOID
  - N.N.R., 1294
- RADIO-IODINATED (I^{131}) SERUM ALBUMIN (Human)
  - N.N.R., 1366
  - treatment of multiple myeloma, [Kriss] 1419—ab
- RADIOLOGY
  - blood dyscrasia hazard, especially in fluoroscopy, 1256A
  - diagnostic, dangers, [Schwarz] 1480—C
  - hazards, especially genetic, (Belgium) 139; (England) 507
  - lead sodium edathamil used in, England, 621
  - radiological physics course at U. of Chicago, 384
  - Residency Review Committee policy, (Council artcle) 378—E; *382
- RADIUM
  - surgery after, for uterus cancer; metastases later, Italy, 1325
  - treatment of indurated corpora cavernosa, 1255
  - treatment, tissue injuries after, [Koch] 632—ab
  - ultrasonic treatment hazardous after? 234
- RAUDIXIN: See Rauwolfia serpentina
- RAUPINA: See Rauwolfia serpentina
- RAUWILOID: See Rauwolfia serpentina
- RAUWOLFIA SERPENTINA (Alseroxylon Rauwolfia; Reserpine)
  - *actions of reserpine, [Dale]* 975—ab
  - activity and toxicity, India, 703
  - alkaloid effect on electroencephalogram, [Colombati] 720—ab
  - as sedative in psychiatry, [Fremming] 144—ab
  - effect on brain, Switzerland, 1146
  - N.N.R.: alseroxylon; rauwolfia; reserpine, 1206
  - toxicity: edema and congestive failure, [Perera] *439
  - toxicity in hypertension; depression and psychoses from, [Muller & others] *836; [Schroeder & Perry] *849; [Achor & others] *841; [Kass & Brown] *1513
  - toxicity: premature ventricular contractions, [Wilson & Wimberley] *1363
  - treatment alone or plus Ritalin or Nepresol in hypertension, [Essellier] 1071—ab
  - treatment of cerebral thrombosis with senile chorea, [Lemmon] 1148—C
  - treatment of delirium tremens, [Avol & Vogel] *1516
  - treatment of hypertension, [Hilden] 74—ab; (England) 622; [Armas Cruz] 820—ab; [Vakil] 1156—ab; (complicated by hemorrhagic retinitis) [Burnett] 1156—ab; (different extracts compared) [Moyer] 1406—ab
  - treatment of hypertension plus other drugs, [Persson] 74—ab; [Moyer] 220—ab; (Peru) 509; [Stuppy] 625—ab; [Dennis] 1406—ab; [Waldron] 1794—ab
  - treatment of preeclamptic toxemia, [de Alvarez] 522—ab
  - treatment of psychogenic rheumatism, osteoarthritis, and rheumatoid arthritis, [Bartfeld] *1510
  - treatment of psychotics with convulsions, [Barsa] 405—ab
  - treatment of skin diseases, [Panaccio] 87—ab; [Ferrara] 228—ab
  - treatment plus chlorpromazine in neuropsychiatry, [Eiber] 406—ab
  - treatment plus Doriden for arteriopathic pain and for sedation, [Noceti] 728—ab
  - treatment plus electroshock, dangers, [Foster & Gayle] *1520
- RAYNAUD'S DISEASE
  - after isoniazid, [Hines] *1197
- VON RECKLINGHAUSEN'S DISEASE
  - neurinomas and meningiomas, hereditary combined, [Davidoff] 628—ab
- RECTOSIGMOID REGION
  - amebiasis, Chile, 1395
  - plantation to pouch of, [Melick] 726—ab
  - ureteral transplantation to pouch of, [Melick] 726—ab
- RECTUM
  - anorectal lesions, benign; complications after surgery for, [Anderson & others] *9
  - biopsy in Hirschsprung's disease, [Swenson] 1688—ab
  - Brill-Symmers disease localized in, [Wissmer] 221—ab
  - cancer, surgery for, England, 393
  - megarectum, possible role of pressure of enema in, [Giordana] 969—C
- REGITINE: See Phentolamine
- REHABILITATION
  - consultation service, A.M.A. resolution on, 1765
  - Illinois Public Aid Commission articles on, 1223
  - in chronic rheumatoid arthritis, [Lohman] 73—ab
  - job placement after, [Dawson & Anderson] *557
  - of aged veterans, 501
  - of handicapped, 1540—E
  - project, A.M.A. Council report, 944
  - training program in coordination and administration, 200
  - vocational, for disabled veterans, 1138
- *RELAXANTS: See Muscles*

RESEARCH
  contracts from Atomic Energy Commission, 619
  grants by Chicago Heart Association, 1219
  grants by USPHS, educational values, *575; *576; *577
  grants in nursing by USPHS, 619
  medical, center; Brookhaven National Laboratory, 1784
  medical, partnership in, 608—E
  on muscular structure and function, request reprints, [Szirmai] 808—C
RESERPINE: See Rauwolfia serpentina
RESIDENTS AND RESIDENCIES
  basic sciences in surgical residency, (Council article) 378—E; *382
  Horse Shoe Club exchange program, U. S. and England, 1387
  hospitals approved for residency, *364; 379—E
  in radioisotope techniques, [Childs] *541
  number, Sept. 24, 1955, page 251; (correction) 497
  residencies according to specialties, *251; *291; 378—E; 379—E; (correction) 497
  residencies in cancer, Texas, 1667
  residencies role in graduate education, *595
  residency programs, policy relating to approval, (Council article) 378—E; *382
  Residency Review Committees; (Council articles) 378—E; *382; 931
  residents from foreign countries, *257
  resident's status in selective service, *593
  training in pediatrics, A.M.A. resolution on, 929
RESOCHIN: See Chloroquine
RESPIRATION
  ACTH and cortisone effect on in asthma, [Fyles] 399—ab
  after lung resections, [Vargha] 402—ab
  artificial, for drowning, Norway, 1565
  artificial (manual), method for infants and small children, [Rickard] *754; (correction) 1557
  bronchial cancer type and localization, relation to, [Löhr] 1483—ab
  depression from thiopental, oxygen for, [Dillon & Darsie] *1114
RESPIRATORS
  treatment of children in iron lung, [Stenger] 719—ab
  treatment of poliomyelitis, Finland, 394
RESPIRATORY SYSTEM
  cancer increasing, Switzerland, 622
  cancer, trends in mortality, [Lew] 625
  disease, adenoidal-pharyngeal-conjunctival, (vaccine studies) [Huebner & others] *986; (England) 1233; (Canada) 1788
  diseases common in children; tonsillectomy relation to incidence, [McCorkle] 146—ab
  disease, prednisone for, [Bickerman] 1166—ab
  distress in infectious mononucleosis; ACTH for, [Mandel & others] 158: 1021, July 23, 1955; (correction) 159: 132, Sept. 10, 1955
  infection in childhood, anoxia in, [Morrison] 1693—ab
  infections, hydrocortisone-antibiotics for, [Persky] 1417—ab
  infections (mild) in new febrile disease, Peru, 706
  infections, tetracycline in, [McCorry] 149—ab
  obstruction in the newborn, laryngologist in resuscitation, [Holinger] *1338
  tobacco tar distribution and absorption in, [Ermala] 732—ab
REST
  homes, Maricopa County Medical Society investigation, [Public Relations] *687
RESTAURANTS
  sanitation survey, England, 1395
RESUSCITATION
  after 50 minutes of cardiac arrest, [Fair] 1063—ab
  of the newborn, [Tovell & others] *1337; (laryngologist in) [Holinger] *1338
RETICULO-ENDOTHELIAL SYSTEM
  Society for Research on Reticuloendothelial System organized, 792
RETICULOSARCOMA
  treatment, TEM, [Hambly] 527—ab
RETINA
  electroretinography, India, 1475
  pigment degeneration with optic atrophy; interrupt pregnancy for? 1172
  transilluminators and illuminated retractors for detachment, [Berens] *1532
  vascular occlusions, etiology and therapy, [Anderson] 229—ab
  vascular reactivity (impaired) related to renal function in degenerative vascular disease, [Sieker] 970—ab
RETINITIS
  hemorrhagic hypertensive, (drugs for) [Burnett] 1156—ab; (splanchnicectomy for) [Huntington] 1159—ab
  macular edema with, 3rd episode; tonsillectomy advised? 1424
RETIREMENT
  for doctors, propose plan for town of prefabricated houses, [Peters] 398—C
RETRACTORS
  illuminated, for retinal detachment and surgery, [Berens] *1532
RETROLENTAL FIBROPLASIA
  etiology: oxygen, [Brændstrup] 1165—ab
  in Nebraska, [Truhlsen] 1165—ab
  in premature infants, England, 65
  in Puerto Rico, [Pico] 630—ab
  in United Kingdom, [Medical Research Council; Boyd] 630—ab
Rh FACTOR: See also Hemolytic Disease of Fetus and Newborn
  negative in parents of infant with erythroblastosis; explanation? 1256
  sensitivity of Salk vaccine, [Abelson & others] *238
  V, a new antigen common in Negroes, rare in white people, [DeNatale & others] *247
RHEUMATIC FEVER
  activity determination, [Skillman] 399—ab
  C-reactive blood protein in, [Ruggieri] 1569—ab
  Cardiac Complications: See Heart disease (rheumatic); Heart inflammation
  causal relation with scarlet fever? 1424
  diagnosis, prophylaxis, therapy, [Saslaw] *653
  etiology: Streptococci in, England, 210
  pathogenesis of acute type, Italy, 395
  preventing, benzathine penicillin and sulfonamides compared, [McCue] 1416—ab
  preventing first attack, [Hubbard] 1157—ab
  preventing with aureomycin, [Weinstein] 1163—ab
  preventing with tetracycline in penicillin-sulfonamide sensitivity, 633
  prevention in Philadelphia schools, 1313
  publications compiled by Whitney Foundation, 1466
  reactivation after mitral commissurotomy, [Fell] 1570--ab
  recurrence during penicillin prophylaxis, 1078
  treatment, cortisone; anal and tonsillar ulcers during, 1499
  treatment, oxytetracycline, France, 1325
  treatment, prednisone, [Coste] 729—ab
  treatment, undesirable side-effects of dissolved pyrazol bodies, [Falk] 149—ab
RHEUMATISM
  in infancy, serum mucoproteins in, [Fantuzzi] 86—ab
  psychogenic, reserpine for, [Bartfeld] *1510
  "Rheumatology Day" (3rd) in Rome, 396
  Schönlein-Henoch syndrome compared to, [Lewis] 408—ab
  treatment of chronic types, cortisone vs. aspirin, England, 1047; [Cohen] 1238—ab
  treatment, salicylamide, [Batterman & Grossman] *1619
RHINITIS
  in bakers, [Pestalozzi] 229—ab
RHODES, C. E., died in explosion of H.M. Submarine Sidon, 141
RHODUS, HERSCHEL L., impostor selling uniforms, 54
RIBOFLAVIN
  avitaminosis with yeast dermatoses during antibiotic therapy, [de Graciansky] 408—ab
RIBS
  fractured, percentage show in x-ray? 1579
RICE
  diet for hypertensive vascular disease with papilledema, [Newborg] 516—ab
RICKARD method of artificial respiration, [Rickard] *754
RICKETS
  declining, Sweden, 67
  vitamin D milk reduces, (Council article) *1018
RIMIFON: See Isoniazid
RINGWORM: See Tinea
RITALIN: See Phenyl-Piperidyl-2-Acetic Acid Methyl Ester
RODENTS
  Schistosoma mansoni in, Brazil, 208
  thallium poisoning from rodenticides, Sweden, 510
ROENTGEN RAYS: See also Medicolegal Abstracts at end of letter M
  aspects of chordoma, [Utne] 1419—ab
  blood dyscrasia hazard in radiologists, especially from fluoroscopy, 1256A
  Chest x-rays: See Thorax, chest x-rays
  correlation with optical esophagoscopy, [Stemplen & others] *22
  diagnosis of bronchostenoses and bronchiectasis, [Denstad] 1697—ab
  diagnosis of cardiovascular disease, image amplifiers in, [Zimmerman] *1449
  diagnosis of esophageal varices, [Kirsh] 1072—ab
  diagnosis of pancreatic disease, [Berk] *1079
  diagnosis of retained surgical sponges, [Olnick & others] *1525
  during pregnancy injure fetus? 1174
  genetic hazards, (Belgium) 139; (England) 507
  percentage of fractured ribs show in? 1579
  schools for technicians, *604
  study in acrosclerotic scleroderma, [Leszler] 1250—ab
  vascular pattern in bone tumor diagnosis, [Begg] 1250—ab
ROENTGEN THERAPY
  for acne vulgaris, (A.M.A. Committee report) [Malkinson] *1117
  for ankylosing spondylitis; leukemia incidence after, [Brown] 529—ab
  for anterior chest wall syndrome, [Prinzmetal & Massumi] *177
  for diabetes insipidus with histiocytosis? 93
  for exophthalmos, [Kutschera-Aichbergen] 1060—ab
  for metastatic breast cancer, [Pearson & others] *1701
  for subdeltoid tendinitis and bursitis, [Shoss] 1697—ab
  leukopenia from, prevented and treated with desoxyribose tetranucleotide, [Coliez] 1250—ab
  thyroid cancer in children and adolescents after, [Clark] *1007
  tissue injuries after, [Koch] 632—ab
  ultrasonic treatment hazardous after? 234
ROTHMAN, STEPHAN, guest editorial on acne vulgaris, 1124—E; (reply) [Mecklin] 1676—C
ROXINIL: See Rauwolfia serpentina
RUBBER
  industry, zinc stereate powder inhalation hazard, 233
  prop for intravenous anesthesia syringe, [Potter] 808—C
  urinals, edema of penis from, 1424
RUBELLA
  during gestation, congenital malformations after, [Clément] 1067—ab
  encephalitis, [Schleisner; Jorgensen] 1066—ab
  maternal, results after epidemic, [Brawner] 1245—ab
RUBIN TEST, apparatus for kymographic uterotubal insufflation, [Rubin] *1190
RURAL COMMUNITIES
  health, A.M.A. Council report, 910; 1649
  health conference sponsored by A.M.A., March 8-10, 783
RUSSIA
  returns to WHO, 68

S

SCUBA
  breathing apparatus for skin diving [Burns] *5
STH: See Somatotropin
SACCHARIN
  thrombopenic purpura from? 93
SALICYLAMIDE
  as analgesic and antirheumatic agent, [Batterman & Grossman] *1619
SALICYLATES
  new: ortho-ethoxy-benzamide metabolism, [Ducco] 1332—ab
  toxicity: stomach hemorrhage, Switzerland, 1147
  treatment, action mechanisms, [Roskam] 1059—ab
  treatment of gout, [Marson] 1058—ab
  treatment plus desoxycorticosterone in rheumatic diseases, [Schiavetti] 1494—ab
  treatment plus prednisone and prednisolone in rheumatism, [Spies & others] *645
SALK Vaccine: See Poliomyelitis
SALMONELLA
  food poisoning from, England, 209; 802; 803
  organisms in meat, England, 1564
SALT
  Free diet: See Sodium restriction
  iodized, aggravate tuberculosis or counteract goitrogenic PAS? 234
  low, syndromes, [Danowski] 1568—ab
SAMPLES
  drug disposal, (hospital in Ecuador) [Estupiñán] 214—C; (through Society of St. Vincent de Paul) [Redman] 398—C
SAMUEL, E. ROGER, A.M.A. General Practitioner Award to, (portrait) 1459—E; 1642; 1644
SANATORIUM: See Tuberculosis
SANITARY NAPKINS
  cervix cancer from? 154
SANITATION
  code revision planned, New York City, 1555
  Indian health service program, 1467
  of summer camps, Norway, 143
  Peruvian congress of, first, 211
  restaurant survey, England, 1395
SARCOIDOSIS
  treatment, cortisone; tuberculosis after, [Lovelock & Stone] (reply) [Israel & others] 69—C
  uveoparotid fever, [Contreras Vilu] 221—ab
SARCOMA
  of thyroid, [Novaes] 1680—ab
SCALENE LYMPH NODE
  biopsy in lung calcifications, [Johnson] 626—ab
SCALENUS Anticus Syndrome: See Muscles
SCAR: See Cicatrix
SCARLET FEVER
  causal relation with rheumatic fever? 1424
  isolation of contact, release 24 hours after single penicillin injection? 1756
  treatment, penicillin; rheumatic heart disease after, [Weinstein] 514—

- SCHISTOSOMA
  - fatal transverse myelitis from, Brazil, 1323
  - mansoni in pathogenesis of liver cirrhosis, [Rodriguez] 1153—ab
  - _mansoni reservoirs, Brazil, 208_
  - schistosomiasis increasing, Israel, 1674
- SCHIZOPHRENIC REACTIONS
  - after mitral surgery, death after electroshock therapy, [Bliss] 1160—ab
  - low normal intelligence and, [Fellner] 1799—ab
  - surgical treatment, leukotomy, [Petersen & others] *774
  - symposium at Peruvian Journeys, 1476
  - treatment, chlorpromazine effect on glucose tolerance, [Charatan] 144—ab
- SCHOLARSHIPS
  - Elks National Foundation, to prospective doctors, (photo) [McCormick] 70—C
  - Finley (Charles O.), for research, 1131
  - Florida alcoholic rehabilitation, 1129
  - in preventive medicine and public health for Latin Americans at Harvard, 956
  - in U. S. Medical Schools, *590
  - Josiah Macy Jr. Foundation, in reproduction, 1666
  - National Research Council, in cancer research, 1134
  - Schering Scholar, 1131
  - Upjohn Scholar, 1035
- SCHOOLS
  - accidents in, England, 701
  - Cancer Information Institute for science teachers, 619
  - Conference on Physicians and Schools (5th), A.M A. sponsors, 611; 1125—E; 1126
  - correspondence, for shut-in children, 691
  - for retarded children planned, N. Y., 1220
  - health, meetings on, Montana, 956
  - health problems, A.M.A. Bureau activities, 922
  - Philadelphia rheumatic fever prevention study, 1313
  - surplus foods for lunch programs, [Snyder] 1676—C
  - technical, approved by A.M A. Council, *603
  - technical, inspection and summary, A.M.A. report, 933
  - Tennessee Woman's Auxiliary health contest in, [Public Relations] *1381
- SCHOOLS, MEDICAL
  - American students in other countries, *601
  - approved, in Canada, *565; *568
  - approved, in U. S., *565; *566
  - Commonwealth Fund awards, 1556
  - cost of construction and equipment, *572
  - department of general practice, U. of Tennessee report, [Davison] *235
  - faculties, *577; *578; (status in selective service) *594
  - financing and estimated 1955-1956 budgets, *574; *575
  - foreign, *601; *602
  - internship stipends by, *254; *255
  - internships by, *253; *599
  - new; first building of U. of Miami dedicated, 1130
  - newly developing, *568; *570
  - preceptorship programs, 1954-1955, *580
  - role in graduate education, *595; *596; *600
  - scholarship and loan funds in, *590
  - **Statistics on, Oct. 8, 1955, page *563**
  - surveys, A.M.A. Council report, 930
  - tax-supported, A.M.A. resolution on medical practice by, 928; 1749; 1750
  - tuition fees, *590
  - type of practice distribution by, *591
  - unapproved, Joint Commission approve hospital staff appointment for graduate? 684.
- SCHWEITZER ALBERT (1875-)
  - honorary memberships, England, 1475
- SCIENTISTS
  - medical students as discoverers, 1214—E
  - oath urged for, England, 965
- SCLERODERMA
  - clinical and anatomic study, (González Salvatierra] 75—ab
  - generalized (acrosclerotic), x-ray study in, [Leszler] 1250—ab
  - treatment, ACTH and cortisone, [Zion] 1408—ab
- SCLEROSIS
  - amyotrophic lateral, 1256
  - amyotrophic lateral, muscle innervation regeneration in, [Wohlfart] 1066—ab
  - sclerosing agents for esophageal varices, [Macbeth] 1572—ab
  - sclerosing agents for varicose veins, 1173
- SCLEROSIS, MULTIPLE
  - clinic opened in Chicago, 1777
  - etiology and treatment, [Tschabitscher] 144—ab
  - treatment, Pancorphen, [Wilder] 1799—ab
- SCREENING: See Diagnosis
- SEBORRHEA
  - dermatitis, Vancide-benzethonium for, [Ball] 87—ab
  - sicca, tissue therapy, [Santyan y Velasco] 1416—ab
- SEDATIVES
  - serpasil as, in psychiatry, [Fremming] 144—ab
  - [illegible]asil plus Doriden pre- and post-opera[illegible]ly, [Nosett[illegible]] 98—ab
- SELENIUM
  - poisoning from broken rectifiers? 1253
- SEMINARS
  - Ginsberg (A. Morris) Memorial Clinical, 789
- SEPTICEMIA
  - burn complication, [Artz & Soroff] *411; (Peru) 1145
- SEROTONIN
  - effects on brain, Switzerland, 1146
  - metabolite in urine to diagnose metastatic carcinoid, [Sjoerdsma & others] 397—C
- SERPASIL: See Rauwolfia serpentina
- SERPINA: See Rauwolfia serpentina
- SERUM
  - density (optical) in cancer, [Quinn] 1696—ab
  - from clotted blood, how to obtain, 634
  - horse, reaction during pregnancy, cortisone harmful? 634
  - sickness from tetanus prophylaxis, [Moynihan] 972—ab
- SEWAGE
  - Salmonella in; paratyphoid spread by, England, 209
- SEX
  - aspects of longevity, 1369—E
  - chromosomal sex detection, (skin biopsy, England) 622; (oral mucosal smears) [Moore] 732—ab; (skin biopsy) [Sohval] 1685—ab
  - crime prevention study, Oregon, 129
  - in coronary artery disease, [Peel] 710—ab; (England) 1046
  - morbidity trends in mouth cancer, [Russel] 1696—ab
  - National Research Council grants-in-aid, 1470
- SHEEHAN'S Syndrome: See under Pituitary
- SHEEP
  - trichinosis from lamb or mutton? 738
- SHOCK
  - _complicating bacteremia, [Hall] 1062—ab_
  - _complicating coronary thrombosis with myocardial infarction, [Wood & others] *635_
  - hemorrhagic, Largactil for, [Fertitta] 1796—ab
  - in heparin therapy, [Mathieu] 820—ab
  - neurotropic actions of Vitamin B_{12} in, [Becattini] 1414—ab
  - of myocardial infarction, methoxamine hydrochloride in, N.N.R., 1634
  - surgical, therapy, [Lundy] 1496—ab
  - treatment, Aramine, [Moyer] 631—ab
- SHOES
  - patent leather, bullous lesions in girl 4 after wearing, 736
- SHOULDER
  - hand syndrome as dystrophic syndrome, Italy, 396
  - pain, causes and therapy, [Krusen] *1282
  - protection in arthritis; use of old shirt, [Rowntree] 214—C
- SIDEROPENIA: See Iron, deficiency
- SILICOSIS: See Pneumonoconiosis
- SINTROM: See 3-Nitrophenylacethylethyl-4-Oxycoumarin
- SINUSES, NASAL
  - ossifying fibroma, [Skolnik] 1695—ab
- SKELETON: See Bones
- SKIN
  - atrophy in progressive telangiectasia in child, 536
  - biopsy to detect sex, (England) 622; [Sohval] 1685—ab
  - cancer research, effect of tobacco tars on, England, 392
  - cancer (squamous-cell) and cutting oils, [Mastromatteo; Gilman] 1168—ab
  - diathermy effect on, 534
  - disease, antibiotics for, N.N.R., 1634
  - disease, chlorquinaldol for, [Murphy] 87—ab
  - disease, dermatosis (pruritic and psychogenic), alseroxylon for, [Ferrara] 228—ab
  - disease, dermatosis (yeast) during antibiotics; avitaminosis with, [de Graciansky] 408—ab
  - Disease (Industrial): See Industrial Dermatoses
  - disease, placenta therapy for, Italy, 1144
  - disease, reserpine for, [Panaccio] 87—ab
  - Diving: See Diving
  - ectodermal dysplasia presenting as fever, [Stiles & Weir] 158: 1432, Aug. 20, 1955; (correction) 159: 615, Oct. 8, 1955
  - flaps fixed by subcutaneous sutures in mastectomy, [Larsen] *24
  - graft, bank, [Brown] 1413—ab
  - graft (full-thickness) to close thoracic wall defect, [Dunavant] *1202
  - grafts (homo-) postmortem, for burns, [Artz] 1798—ab
  - hexachlorophene for preoperative use, N.N.R., 1635
  - infection (recurrent) in boy with enlarged tonsils and bad teeth, 1173
  - Inflammation: See Dermatitis
  - lesions from fall-out radiation in Marshall Islands, [Cronkite & others] *430
  - pigmentation in chronic lung disease, cause of? 737
  - rotary dermabrasion for acne scars, [Eller] 726—ab; (A.M.A. Committee report) [Rattner & Rein] *1299; 1303—E
  - temperature in relation to nerve injuries, [Shapiro] 721—ab
- SKIN—Continued
  - test, feasibility for penicillin sensitivity, [Berger & Eisen] *191; _[Coleman] 1148—C_; [Siegal] 1401—C
  - tumors, capillary hemangiomas, [Modlin] 520—ab
- SKULL: See Cranium
- SLEEP
  - insomnia during Rauwolfia therapy, [Muller & others] *836; [Schroeder & Perry] *839
  - Therapeutic: See Hypnosis, Narcosis
- SMALLPOX
  - combined immunization, England, 210
  - in France in 1955, [Le Bourdellès] 1486—ab
  - vaccination for physicians' children, Norway, 1675
  - vaccination, international certificates; physician and health officer roles, 852—E
  - vaccine used as living virus? immunologic process occurring, 980
- SMELL
  - extraolfactory _components of flavor_, [Clark & Dodge] *1721
- SMOKING: See Tobacco
- SNAKEBITE
  - treatment, ethyl chloride; technic, (replies) [_Allen_; Bierly] 830
- SNELLEN TEST
  - for visual loss from compensable eye injuries, (_reply_) [Gabriels] 634
- SOAP
  - eczema (photoallergic) from, Switzerland, 212
- SOCIAL SECURITY
  - A.M.A. conference on legislation, 1305
  - A.M.A. resolution on physician survey by state societies on, 1762
  - A.M.A. resolutions on special commission for review, 1766
  - background and prospects, [Knutson] *1054
  - compulsory cash disability benefits; A.M.A. viewpoint, *1017; (_resolution_) 1767
  - compulsory for physicians, A.M.A. viewpoint, 1302—E; 1549; 1650; 1656; 1663; (President Hess' page) 1744
  - history, [Blasingame] *1235
  - National Insurance Act, Israel, 1675
  - physicians' strike in protest against proposed bill, Austria, 800; 1045
  - survivorship benefits for physicians' widows and children, 1636—E
  - World Medical Assn'n. discusses, 1020—E
  - youth of nation and exploitation, A.M.A. resolutions on, 1760
- SOCIALISM
  - welfare state; pensions, allowances and benefits paid in 1954, England, 394
- SOCIALIZED MEDICINE: See Insurance, sickness; Medicine, socialized
- SOCIETIES, MEDICAL: See also list of Societies at end of letter S
  - A.M.A. Booklet "Component Medical Societies," 37—E
  - cancer commissions, propose establishment by, A.M.A. resolutions on, 1762
  - county, Los Angeles, (headquarters dedicated, photo) 1034; (sponsor medical progress assembly) 1303—E
  - county, Maricopa, Ariz., (investigate rest homes) [Public Relations] *687; (honor writer J. DeVries) *1775
  - county, Medical Civil Defense Conference, Nov. 12-13, 954
  - county, San Diego, litigation on group medical and hospital plan, [Medicine and the Law] *1460
  - county, San Francisco, and its blood bank moved, (photo) 788
  - County Society Activities survey, A.M.A. report, 944
  - county, Winnebago (Ill.), 75th anniversary, 788
  - grievance committee guides, A.M.A. reports, 945; 1550; 1654
  - Hawaii Medical Ass'n. centennial, 1133
  - International Ass'n. of Medical Museums renamed, 1224
  - obligation to review disciplinary procedures, Judicial Council report, 926
  - physician's responsibility to, [Fox] *544
  - state and county executives, roster; A.M.A. pamphlet, 1218
  - state, Maine, and journal moved, 1131
  - state, Minnesota Maternal Mortality Committee report, [Council Article] *1771
  - state, proposed social security survey by, A.M.A. resolution on, 1762
  - state, Tennessee revises postgraduate system, 386
  - state, Wisconsin's new headquarters, (photo) 130; 1133
  - voluntary health insurance plans sponsored by, A.M.A. resolution on contract formulation, 1761
  - voluntary prepaid medical plans sponsored by, A.M.A. resolution commending, 1763
- SOCIETY of St. Vincent de Paul, dispose drug samples through, [Redman] 398—C
- SODIUM
  - bicarbonate, standing order of combining with sulfonamides, (reply) [Carey] 830
  - Chloride: See Salt

SODIUM—Continued
  hydroxide poisoning (Council report) [Arena] *1537; 1541—E
  levothyroxine, N.N.R., 440
  morrhuate for esophageal varices, [Macbeth] 1572—ab
  radio-chromate (Cr^{51}), N.N.R., 1209
  radio-iodide (I^{131}), U.S.P., N.N.R., 679
  restriction, prolonged for liver cirrhosis; nutrition, hepatic function, and portal hypertension improve, [Davidson] *1257
  retention in edema formation, [Goldman] 1419—ab
  retention with hyperaldosteronuria, edema from, Switzerland, 212
  total circulating, estimation, [Leevy & Donovan] *771
SOLLMANN, TORALD, A.M.A. citation to, 1663
SOLVENTS
  hazards in dry-cleaning industry, [Bourne] 730—ab
SOMATOTROPIN (STH; somatotropic hormone)
  diabetes in dogs produced by, England, 802
SOMNIFENE
  toxicity, gangrene after accidental intra-arterial injection, [Arruda] 1248—ab
SOMOGYI UNITS
  amylase in serum, rapid test, [Gilbert] *775
SOUND
  auscultatory gap in blood pressure, 94
  Waves: See Ultrasonics
SPECIALTIES
  Advisory Board for, A.M.A. report, 932
  Approved Examining Boards in, *441
  Examining Boards in, A.M.A. report, 932
  number of specialists in N.H.S. increased, England, 1231
  residencies and fellowships in, approved by A.M.A., *251; *258; *291; 378—E; 379—E
  training background, 609—E
  training in Brazil, 1015
  training in Denmark, 504
  training problems, [Cooksey] 1052—C
  training, role of medical schools, *595; *596; *600
SPEED, KELLOGG (1879-1955)
  memorial services, Chicago, 955
SPERMATOZOA
  low count, treatment effective? 154
SPHINCTER MUSCLES
  Oddi's, stricture; surgery for, [Preston] *17
SPHYGMOMANOMETERS
  thigh cuff to determine arterial pressure in leg, [Sapp & others] *1727
SPINAL CANAL
  cervical air myelography, [Murtagh] 822—ab
SPINAL CORD
  lesions in dorsolumbar fractures, columnotomy for, [Renes] 1490—ab
SPINAL FLUID: See Cerebrospinal Fluid
SPINE: See also "Vertebral Dislocation" under Medicolegal Abstracts at end of letter M
  ankylosing spondylitis treated with x-rays, leukemia incidence after, [Brown] 529—ab
  cervical, and globus syndrome, [Morrison] 1696—ab
  dorsolumbar vertebral fractures with cord lesions, [Renes] 1490—ab
  hypertrophic spondylitis, cortisone for? 1256A
  lumbar disk herniation, surgery for, [Svaar] 721—ab
  lumbar disk protrusion as surgical emergency, [Fairburn] 1063—ab
  lumbar disk slips, surgery for, 1173
  lumbar disk syndrome, [Stern] 1688—ab
  lumbar disks, multiple ruptures, [Cloward] 974—ab
  lumbar traction, eliminate factors preventing stretch, [Judovich] *549; (reply) [Varco] 1676—C
  lumbar vertebrae with loose facets causing back pain, [King] 1690—ab
  osteoarthritis, intra-articular and paravertebral cortisone for, [Cohen & others] *1724
  prolapsed disk, hydrocortisone for pain of, [Zappalà] 1412—ab
  surgery for spondylolisthesis without fusion; excise loose lamina and decompress nerve roots, [Gill] 82—ab
  tuberculosis, evacuate paravertebral abscess and curettage of vertebral bodies for, [Wilkinson] 1242—ab
SPLANCHNICECTOMY: See under Nerves
SPLEEN
  Brill-Symmers disease localized in, [Wissmer] 221—ab
  congenital absence, [Polhemus] 1491—ab
  disease, surgical aspects, [Cole] 520—ab
  hemorrhage after percutaneous splenoportography, [Catalano] 624—C
  pressure measured to determine portal pressure, Brazil, 964
  pressure to evaluate porta-caval anastomosis, [Atkinson] 1411—ab
SPLENECTOMY
  bleeding esophageal varices after, [Hallenbeck] 1571—ab
  for Mediterranean anemia, [Clement] 1069—ab
SPLENOMEGALY
  in infants, diagnosis of various types, Italy, 211
  tonsillitis and, [Cronk] 1484—ab
SPLENOPORTOGRAPHY
  laparoscopic, [Wannagat] 1072—ab
  percutaneous, spleen hemorrhage after, [Catalano] 624—C
SPONDYLITIS: See Spine
SPONDYLOLISTHESIS
  surgical treatment, arthrodesis, [Bosworth] 815—ab
  surgical treatment without fusion: excise loose lamina and decompress nerve roots, [Gill] 82—ab
SPONGE
  surgical (retained), radiological diagnosis, [Olnick & others] *1525
SPRUE
  idiopathic, prednisone for, Switzerland, 1146
SPUTUM
  cytology (exfoliative) in lung cancer; [Spjut] 632—ab
  mycelial forms of Coccidioides immitis in, [Fiese] 822—ab
  tubercle bacilli on streets from, Turkey, 1031
STAPHYLOCOCCUS
  antibiotics effect on pathogenicity and proliferative capacity, [Hinglais] 231—ab
  enteritis after antibiotics fatal, [Thaysen] 1239—ab; [Todd] 1680—ab
  enterocolitis (acute) after antibiotics, [Rentchnick] 74—ab
  food poisoning in children, England, 803
  infection, antibiotic-resistant, (reply to Dr. Finland) [Ross] 70—C; (relation to bacteriophage types) [Barber] 1418—ab
  infection in lungs, (Switzerland) 623; (pneumonectomy for, in infant) [Chevalley] 1797—ab
  oxytetracycline- and tetracycline-resistant, [Brodie] 813—ab
  pathogenic, and carriers, Norway, 1675
STARVATION
  Frederick Sterns and Allen treatment for diabetes? 92
STEEL
  wire to repair abdominal wall, [Petrina] 1798—ab
STEIN-LEVENTHAL SYNDROME
  [Stein] 84—ab
STERILITY, BACTERIAL
  of laundered diapers in hospital, (reply) [Sherrill & Kinard] 1478—C
STERILITY, SEXUAL
  etiology: fallopian tube diverticulosis, [Siegler] 1245—ab
  etiology: hostile cervical mucus? 93
  hysterosalpingography in, [Öhlinger] 632—ab
  in the male, [MacLeod] 84—ab; (treatment for low sperm count?) 154
  Stein-Leventhal syndrome, [Stein] 84—ab
  treatment in men and women, Peru, 1146
STERILIZATION, BACTERIAL
  hepatitis from boiled syringe? 1078
  of blankets with cetyltrimethylamine bromide, [Blowers] 528—ab
  of feces with antibiotics, preoperative; 3 deaths after, England, 66
STERILIZATION, SEXUAL
  for prostate cancer with and without estrogens, Italy, 211
  in rats; estrogen and/or chorionic hormone effects after, Peru, 1233
  Irving ligation, pregnancy after? 1078
STEROSAN: See Chlorquinaldol
STEVENS-JOHNSON SYNDROME
  in 72-year-old man, treatment, 1423
STILBAMIDINE
  treatment of tic douloureux, [Woodhall] 226—ab; 1574—ab
STILBENE
  increases leukocyte resistance in pregnancy, Switzerland, 1477
STIPENDS: See Wages
STOCKINGS: See Clothing
STOKES-Adams Syndrome: See Heart block
STOMACH
  acidity, hyperchlorhydria; control, [Boros] 714—ab
  acidity measured by quinine excretion, [Boersma] 1407—ab
  cancer, abdominothoracic total gastrectomy for, [Fretheim] 519—ab
  cancer, achlorhydria in diagnosis, [Hitchcock] 1798—ab
  cancer and inflammation, hemorrhages from, Belgium, 139
  cancer, blood changes, Switzerland, 707
  cancer differentiated from ulcer, [Sepúlveda] 1238—ab; (uropepsin excretion in) [Gray] 1795—ab
  cancer, occurrence with pernicious anemia, [Zamcheck] 76—ab
  cancer of cardia, [Wu] 1062—ab
  cancer; pre- and postoperative blood volume, hemoglobin, and serum protein in, [Fretheim] 519—ab
  cancer, pyloric metaplasia after gastrectomy for, England, 393
  cancer, subtotal vs. total gastrectomy for, [Hunt] 79—ab
  cancer, superior hemorrhagic polioencephalopathy in, [Verhaart] 226—ab
  cancer, total gastrectomy for, Brazil, 392
STOMACH—Continued
  cardiospasm with esophagus cancer, [Klayman] 400—ab
  circulation after gastrectomy and at autopsy, Spain, 1400
  digestion of homogenized milk in infants, [Adam] 1417—ab
  disease (cardial), diagnosis by optical esophagoscopy, [Stemplen & others] *22
  drugs of different actions altered by? 736
  exfoliative cytology, [Browne] 225—ab
  gastroduodenal intussusception, [Mauthe] 731—ab
  granulomatous inflammation, chronic nonspecific, [Richman] 1407—ab
  hemorrhage after salicylates, Switzerland, 1147
  motility, gastroscopic observations of probanthine effect on, [Barowsky] 526—ab
  mucosa in esophagus, [Morris] 1412—ab
  secretion depressed by insulin in normal man, [Olson & Necheles] *1013
  secretion, methscopolamine bromide effect on in duodenal ulcer, [Rider & others] *1085
  Surgery: See also Peptic Ulcer, surgical treatment; Stomach cancer
  surgery, convert Billroth II to Billroth I for symptoms after, [Mathewson] 716—ab
  surgery, gastrectomy (partial), intrinsic factor lowered and anemia after? 1700
  surgery, gastrectomy; symptoms after, (Belgium) 62; [Capper] 1489—ab
  surgery, gastrectomy (upside-down), Belgium, 964
  surgery, resection with celiac artery ligation; hepatic necrosis after, [Clarke] 718—ab
  tumors, adenomyosis vs. aberrant pancreas, [Cimmino] 731—ab
  tumors, lymphoma, [Skrimshire] 1412—ab
  Ulcer: See Peptic Ulcer
STOMACH TUBE
  for feeding combined with suction, [Frankel] 1052—C
STREPTOCOCCUS
  antigen-antibody reaction to diagnose rheumatic fever, [Skillman] 399—ab
  endocarditis lenta, erythromycin cures after other antibiotics fail, [Lambert] 220—ab
  endocarditis, penicillin and streptomycin for, [Hall] 220—ab
  in etiology and pathogenesis of rheumatic fever, (England) 210, (Italy) 395; [Saslaw] *653; (penicillin-resistant) 1078; [Hubbard] 1157—ab
STREPTOKINASE-STREPTODORNASE
  in immediate closure of contaminated incisions, [Smith] 718—ab
STREPTOMYCIN
  toxicity: allergy in nurses; desensitization, [Jahrmarker] 1494—ab
  treatment of rare tuberculosis, [Oppenheim] 1070—ab
  treatment of tuberculosis, (M R C. report) 142; [Drolet] 1407—ab; (in children) [Bour] 1415—ab
  treatment plus chloramphenicol ester in melitococcic infection, [Gambusi] 231—ab
  treatment plus isoniazid in pulmonary tuberculosis; [Véran] 516—ab; (insufflated cavitation in infants from) [Albós Martínez] 724—ab
  treatment plus penicillin in streptococcal endocarditis, [Hall] 220—ab
  tubercle bacilli resistant to, [Beck] 711—ab; [Chaves] 712—ab; [Murdoch] 1237—ab; (England) 1325; (changes to sensitive) [Allen & Roberg] *1533
STRESS
  latent epilepsy as factor in tension [Liddell] 226—ab
STRIKES
  physician refused to see patient on strike, England, 64
  physicians', in protest to general social security, Austria, 800; 1045
"STROKES". See Brain hemorrhage
STUDENTS
  health service, A.M.A. report, 1369—E; 1370
  tuberculous, England, 965
STUDENTS, MEDICAL
  American, studying in other countries, *601
  as scientific discoverers, 1214—E
  enrollment increased at Hebrew U., 705
  foreign, studying in U. S., *601
  loan fund at U. of Wisconsin, 1556
  loan fund established in Kansas, 1311
  loan fund of Loma Linda Foundation, 1463
  loan funds and scholarships, *590
  military liability, *583; *587
  pledge financial aid for medical center, 688
  Statistics on, October 8, 1955, page *563
  Student A.M.A., (Boston delegates) 1646; (report) 1768
  vacation jobs for, Norway, 1675
  women, enrollment of, *583
SUBDURAL: See Meninges
SUCCINYLCHOLINE
  safest and best muscle relaxant, England, 142
SUCTION
  for pyloric channel ulcer, [Ruffin & others] *668
  stomach tube combining feeding, [Frankel] 1052—C

SUICIDE
  attempt with aspirin, [Schreiner] 711—ab
  high in Hampstead, England, 508
  juvenile, England, 1396
N_1-SULFANILYL-N_2-n-BUTYLCARBAMIDE
  antidiabetic sulfonamide, [Franke; Bertram] 1328—ab
SULFATHIAZOLE
  a dangerous drug? 736
SULFONAMIDES
  penicillin and, sensitivity; prevent rheumatic fever with tetracycline, 633
  prophylaxis of rheumatic fever compared to benzathine penicillin, [McCue] 1416—ab
  toxicity; allergic reactions, [Lowell] 1070—ab
  toxicity: amblyopia, [Taub] 1695—ab
  treatment of bacterial infections, (England) 141; 1458—E
  treatment of purulent meningitis, [Etteldorf] *746
  treatment plus penicillin, [Nissel] 1682—ab
  treatment, standing order of combining sodium bicarbonate, (reply) [Carey] 830
SUMMER
  ulcerations in livedo reticularis, [Feldaker] 228—ab
SUPERSONICS: See Ultrasonics
SUPRARENALS: See Adrenals
SURGEONS
  International College, 20th anniversary, 67
  U. S., confer with Israel physicians, 705
SURGERY
  ACTH, cortisone, and hydrocortisone in, [Abbott] 1572—ab
  advances in Norway, 1675
  basic sciences in approved residency, (Council article) 378—E; *382
  cholangiography during, [Gifford] 1489—ab
  diabetes management during, [Goodman] *831
  erythrocyte survival in transfused blood before and after, [Cortese] 1061—ab
  foggy glasses, prevention: antifog preparation, [Smith] 969—C
  gastrointestinal ulcers after, [de Ruiter] 1159—ab
  gynecologic, appendectomy during, Sweden, 1326
  gynecologic, thrombosis and embolism after, [Röttger; Soergel] 523—ab
  homotransplantation, medicolegal aspects, (Medicine and the Law) [Vestal & others] *487
  homovital transplantation in agammaglobulinemia, [Varco] 1242—ab
  hypothermia in, [Swan] 1242—ab
  International Society of Plastic Surgery founded, 959
  Nebacetin in, [Holzhausen] 1798—ab
  operating room, Joint Commission approve of practical nurse as "scrub" nurse? 684
  operating room, take pictures with electronic flash attachment? 152
  parenteral feeding (high calorie) after, Brazil, 699
  plastic, paying for, under N.H.S., England, 965
  postoperative aldosteronism, N. Z., 705
  postoperative care, Brazil, 62
  postoperative parotitis vanishing, [Robinson] 1410—ab
  postoperative tetany, insensitivity to vitamin D, [Dent] 1483—ab
  postoperative trauma, increased aldosterone excretion, [Llaurado] 225—ab
  postoperative vomiting, dimenhydrinate for, [Moore & others] *1342
  preoperative use of hexachlorophene on skin, N.N.R., 1635
  radiological diagnosis of retained sponges, [Olnick & others] *1525
  risk in coronary heart disease, [Etsten & Proger] *845
  safe for patient with positive syphilis test but no evidence of lesions? 1076
  shock, therapy, [Lundy] 1496—ab
  skin bank, homografts, [Brown] 1413—ab
  streptococcal enzymes to close contaminated incisions, [Smith] 718—ab
  transilluminators and illuminated retractors for, [Berens] *1532
  Trendelenburg position not necessary with muscle relaxants, England, 142
SUTURES
  subcutaneous, to fix skin flaps in mastectomy, [Larsen] *24
  unabsorbable, and ligature, hanging bladder stones on, [Levack] 1492—ab
SWALLOWING
  dysphagia in so-called late chlorosis, [Kruisinga] 714—ab
SWEAT
  antibiotics (topical) effect on axillary odor, [Shelley & Cahn] *1736
  deodorization in poorly ventilated rooms, 1174
SWEAT GLANDS
  absence of, ectodermal dysplasia presenting as fever, [Stiles & Weir] 158:1432, Aug. 20, 1955; (correction) 159:615, Oct. 8, 1955
  involvement doubtful in adenoma sebaceum, [Zeligman & Scalia] 708—C
SWIMMING
  long immersion in cold water, England, 1396
  public pool, allow child with tinea capitis to use? 234
  Red Cross manual for the handicapped, 692
SWINDLERS: See Impostors
SWINGLE'S CORTICAL EXTRACT
  for adrenocortical hypofunction, [Rowntree] *1527
SYMPATHECTOMY
  adrenalectomy with, for hypertension, [Yeager] 223—ab
  for occlusive arterial disease, [Pratt] 1064—ab
  for thromboangiitis obliterans; clinical condition parallel oscillometer? 154
  intermittent with claudication, [Mavor] 1687—ab
  splanchnicectomy and/or adrenalectomy with, in hypertension, [Cartier] 814—ab
  thoracic, posterior upper; improved approach, [MacKay] *1261
  thoracolumbar, for hypertension, [Zintel] 81—ab; 626—ab
SYMPATHICOGONIOMA (neuroblastoma)
  in children, England, 393
SYNCYTIOMA MALIGNUM: See Chorioadenoma
SYNKAYVITE: See Vitamins K
SYNNEMATIN B
  new penicillin, England, 1397
SYPHILIS
  changing aspects, Italy, 1144
  congenital in children, penicillin evaluated, [Dembińska-Widy] 1163—ab
  pain in knees 6 years later, further treatment indicated? 1499
  pulmonary, gummatous form, Brazil, 1323
  seropositive tests without signs of disease, (use of Treponema immobilization test, reply) [Hartman] 738; (surgery safe in?) 1076; (pneumopathies with) [Cerviá] 1153—ab
  treatment, corticotherapy before penicillin, [de Graciansky] 76—ab
SYRINGE
  boiled instead of autoclaved, hepatitis from? 1078
  rubber prop for intravenous anesthesia, [Potter] 808—C

SOCIETIES AND OTHER ORGANIZATIONS

Acad.—Academy
Am.—American
A.—Association
Coll.—College
Commn.—Commission
Comm.—Committee
Conf.—Conference
Cong.—Congress
Dist.—District
Div.—Division
Found.—Foundation
Hosp.—Hospital
Indust.—Industrial
Inst.—Institute
Internat.—International
M.—Medical
Med.—Medicine
Nat.—National
Pharm.—Pharmaceutical
Phys.—Physicians
Soc.—Society
Surg.—Surgery
Surgs.—Surgeons
S.—Surgical

Note:—For items on societies not found in the Medical News Section, see alphabetical listing in Index.

Acad. of Psychosomatic Med., 496, 1387
Ackerly Soc. of Psychiatric Residents of the University of Louisville (Ky.) School of Med., 1464
Aero M. A., 792
  M. Engineering A., 493
Air Pollution Found., 1034
Alabama Department of Health, 1553
  Soc. of Crippled Children and Adults, 1776
  State Vocational Rehabilitation Service, 1776
Alameda-Contra Costa County (Calif.) M. A., 197, 200
Alameda County (Calif.) Heart A., 493
Alaska Board of Health, 1779
Albany County (N. Y.) Department of Public Welfare, 1132
Albert, Isaac, Research Inst., 1312
Allergy Found. of Northern California, 1310, 1553
Alpha Omega Alpha, Gamma Chapter, 1129
Alumni A. of the Jersey City (N. J.) M. Center, 1132
Am. Acad. for Cerebral Palsy, 614
  Acad. of Arts and Sciences, 1668
  Acad. of Dermatology and Syphilology, 1315
  Acad. of General Practice, 131, 197, 199, 200, 385, 387, 493, 1036
  Acad. of General Practice Chapters: Arizona, 1037; San Francisco, 197
  Acad. of Neurological Surg., 691
  Acad. of Ophthalmology and Otolaryngology, 614, 1467
  Acad. of Orthopaedic Surgs., 53
  Acad. of Pediatrics, 387, 1312, 1666
  A. for Hosp. Planning, 200
Am. Acad.—Continued
  A. for the Advancement of Science, 54, 1779
  A. for the History of Med., 1556
  A. for the Surg. of Trauma, 791
  A. for Thoracic Surg., 1224
  A. of Blood Banks, 1134
  A. of Hosp. Consultants, 200
  A. of Inhalation Therapists, 958
  A. of M. Clinics, 958, 1669
  A. of M. Record Librarians, 496
  A. of Neuropathologists, 958
  A. of Nursing Homes, 131
  A. of Obstetricians and Gynecologists, 54, 1467
  A. of Obstetricians, Gynecologists and Abdominal Surgs. Found., Inc., 54
  A. of Railway Surgs., 792
  A. of University Women, 614
  Board of Anesthesiology, 1555, 1557
  Board of Clinical Chemistry, Inc., 792
  Board of Internal Med., 1668
  Board of Pathology, 1669
  Board of Preventive Med., 1133
  Board of Psychiatry and Neurology, 1314, 1556
  Board of Radiology, 615
  Board of Surg., 494
  Cancer Soc., 52, 199, 615, 1133, 1134
  Cancer Soc. Divs.: Connecticut, 197; Illinois, 1034; Nebraska, 385, New Jersey, 1132; Oklahoma, 957, 1313; Wisconsin, 1036
  Chemical Soc., 131
  Clinical and Climatological A., 958
  Coll. of Cardiology, 1038, 1224
  Coll. of Chest Phys., 792, 1314, 1780
  Coll. of Chest Phys. Chapters: Mississippi, 1035; New Jersey, 1384; Potomac (W. Va.), 495
  Coll. of Gastroenterology, 791, 1557
  Coll. of Phys., 1311, 1384, 1464
  Coll. of Phys., Montana-Wyoming Chapter, 493
  Coll. of Preventive Med., 1135
  Coll. of Surgs., 386, 494, 792, 1387
  Cong. of Physical Med. and Rehabilitation, 1557
  Cyanamid Company, 1555
  Cyanamid Company, Lederle Laboratories Div., 200, 1131
  Diabetes A., 1388, 1669
  Dietetic A., 691
  Federation for Clinical Research Sections: Eastern, 1314; Midwestern, 958
  Found., 1779
  Found. for the Blind, 1133
  Geriatrics Soc., 1315
  Goiter A., 1223
  Heart A., 613, 692, 693, 1223, 1313, 1557, 1665
  Hosp. A., 131, 200, 1384, 1557
  Hungarian M. A., 1386
  Inst. of Architects, 200
  Inst. of Nutrition, 958
  Korean Found., 690
  Laryngological Soc., 1466
  League Against Epilepsy, 1386
  M. A., 692, 955, 1034, 1222, 1315, 1388, 1464
  M. Soc. of Vienna, 1781
  M. Writers' A., 54, 200
  Neurological A., 959
  Ophthalmological Soc., 959, 1220
  Orthopaedic A., 1224
  Orthopsychiatric A., 1777
  Pediatric Soc., 959
  Pharm. A., 1223
  Pharm. Manufacturers' A., 1387
  Psychiatric A., 493, 1219, 1667, 1777
  Psychiatric A., Midwest Regional Research Conf., 132
  Psychiatric A., Western Div., 791
  Public Health A., 1134, 1668
  Public Welfare A., 1314
  Red Cross, 692
  Red Cross, Rochester-Monroe County (N. Y.) Chapter, 129
  Rheumatism A., 1386
  Rhinologic Soc., 614
  Roentgen Ray Soc., 131, 1387
  School Health A., 1134
  Soc. for Pharm. and Experimental Therapeutics, 54
  Soc. for Public Administration, Capital Dist. Chapter, 1132
  Soc. for the Aged, 1669
  Soc. for the Study of Arteriosclerosis, 1037
  Soc. of Anesthesiologists, 791
  Soc. of Clinical Pathologists, 614, 1467
  Soc. of Tropical Med. and Hygiene, 958
  Therapeutic Soc., 1466
  Trade A., 52, 198
  Trudeau Soc., 1668
Animal Care Panel, 1312, 1780
Anti-Trachoma League, 693
Arizona State Health Department, 1467
Armed Forces Epidemiological Board, 1465
Armour Research Found., 691
Arthritis and Rheumatism Found., 131, 1223
  and Rheumatism Found. Chapters: Eastern Oklahoma, 957; Michigan, 496; Pennsylvania, 790; Wisconsin, 130

Societies and Other Organizations—Continued
Arthritis—Continued
  Study Unit (Yale University School of Med.), 688
A. for Clinical and Research Studies, 1131
  for Research in Nervous and Mental Disease, 1387
  for the Aid of Crippled Children, 1668
  of Am. Law Schools, 1387
  of Am. M. Colls., 791, 1388
  of Am. Phys. and Surgs., Inc., 496
  of Ex-Resident and Resident Phys. of the Philadelphia General Hosp., 1313
  of Life Insurance M. Directors of America, 692, 1467
  of M. Illustrators, 496
  of Military Surgs. of the United States, 1037
  of State and Territorial Health Officers, 1669
  of Teachers of Preventive Med., 959, 1135
Australasian M. Cong., 1220
Australian M. A., Queensland Branch, 1220
Avalon Found., 1222
Ballard Memorial Fund, 493
Baltimore City M. Soc., 792, 1131
  Ear, Nose and Throat Soc., 1553
  Washington Dermatological Soc., 1557
Barnard Alumnae A. of Barnard Coll., 1134
Beaumont, Louis D., Trust, 129
Beltone Inst. for Hearing Research, 1311
Berg, Henry W. and Albert A., Inst. for Experimental Physiology, Surg. and Pathology, 957
Beth David Hosp. Alumni A., 1385
Binghamton (N. Y.) Acad. of Med., 199, 690
Biological Sciences Found., 1466
Board of Internal Med., 1034
Brazilian Coll. of Surgs., 1313
British Empire Cancer Campaign, 615
Brooklyn Acad. of General Practitioners, 956
  Doctors' Symphony Orchestra, 1312
  Tuberculosis and Health A., 956, 1778
  Urological Soc., 1465
Broome County (N. Y.) M. Soc., 613
Bunts, Frank E., Educational Inst., 790, 1132
California Acad. of General Practice, 612
  Department of Public Health, 1314, 1383, 1556
  Soc. of Internal Med., 1661
  Southern, Conf. on the Elimination of Air Pollution, 1034
  State Chamber of Commerce, 1031
Cambridge (Neb.) Chamber of Commerce, 1778
Campbell, Robert D., Found., 1555
Canadian Soc. for the Study of Fertility, 497
Capital Dist. Conf. on Aging, 1132
Carter Travel Club, 1312
Center for Hosp. Affairs, 1384
Central A. of Obstetricians and Gynecologists, 496
  Neuropsychiatric A., 691
  Soc. for Clinical Research, 958
  Soc. of Nuclear Med., 1669
Chattanooga and Hamilton County (Tenn.) M. Soc., 494
Chicago Acad. of Sciences, 1130
  A. of Commerce and Industry, 955, 1310
  Comm. on Alcoholism, 955
  Council of Child Psychiatry, 1310
  Diabetes A., 1130
  Greater, Industry-Community Conf. on Alcoholism, 955
  Greater, Safety Council, 612
  Gynecological Soc., 689, 1219
  Heart A., 613, 955, 1034, 1130, 1219, 1310, 1463, 1664
  Hosp. Council, 612
  Inst. of Med. of, 1130
  M. Soc., 1464
  M. Soc. Branches: Aux Plaines, 1463; Englewood, 613; Jackson Park, 613; South Side, 613; Stock Yards, 613; West Side, 955
  Ophthalmological Soc., 789
  Orthopedic Soc., 613
  Rehabilitation Inst. of, 1553
  Soc. of Allergy, 1219
  Soc. of Indust. Med. and Surg., 689
  Soc. of Internal Med., 789, 1219
  Soc. of M. History of, 689, 1463
  S. Soc., 493
  Urological Soc., 1219
Chilean Iodine Educational Bureau, 1223
Chronic Disease Research Inst., 385, 1383
Chrysler Corporation, 1465
Ciba Found. for the Promotion of Internat. Cooperation in M. and Chemical Research, 1466
Cincinnati, Acad. of Med. of, 1132, 1385
  Soc. of Neurology and Psychiatry, 1133, 1465
Cleveland Clinic Found., 1132
Clinical Orthopaedic Soc., 1669
Coll. of Am. Pathologists, 614, 1135
  of Am. Pathologists, Middle Eastern Region, 53, 1222
  of General Practice of Canada, Ontario Chapter, 55
Colombia, M. Federation of, 615
Colorado Hosp. A., 788
  State M. Soc., 955
Columbus State Psychiatric Inst., 1384
Commn. on Accidental Trauma, 1465
Commonwealth Fund, 790, 955, 1132, 1556
Conf. of Professors of Preventive Med., 959
  on Hosp. Planning, 200
  on Nutritional and Metabolic Aspects in Disease, 1036
  on Recent Advances in Med., 1129
CIO Amalgamated Clothing Workers of America, 1463
Cong. of Neurological Surgs., 792
Connecticut Conf. on Phys. and Schools, 1034
  Postgraduate Seminar in Psychiatry and Neurology, 128
  Public Health A., 51, 128
  State M. Soc., 51, 128, 1034, 1383, 1776
Coordinating Council for Cerebral Palsy, 1666
Council on Undergraduate M. Education, 1780
Cowlitz-Wahkiakum Dist. (Wash.) Health Department, 1668
Crittenton, Florence, League, 1666
Dallas (Texas) Acad. of Internal Med., 1669
  (Texas) Diabetes A., 1669
Dana, Charles A., Found., 1666
Dane County (Wis.) M. Soc., 1036
Davenport (Iowa) Newspapers, Inc., 1464
Delaware, M. Soc. of, 688, 1776
  Psychiatric Soc., 955
  Welfare Council of, 955
Dent, Harry, Family Found., Inc., 1554
Department of Personnel, City of New York, 790
de Villiers, Robert Roesler, Found., Inc., 1780
District of Columbia, M. Soc. of the, 612
Dumont Television Network, 1555
Eastman Kodak Company, 1223
Endocrine Soc., 198, 1035, 1131
Erie, County of (N. Y.), M. Soc. of the, 613
Essex County (N. J.) Pathological and Anatomical Soc., *1385*
Farm Women's Council, 495
Federation of Am. Socs. for Experimental Biology, 1223
  of French-Speaking Gynecologic and Obstetric Socs., 132
Fire Prevention Bureau, 612
Florida Acad. of General Practice, 788
  Council on Aging, 955
  M. A., 131
  Science Fair Work Conf., 386
  State Health Department, 131
Ford Motor Company, 1465
Foreign Operations Administration, 955
Fourth Naval Dist., 692
French Soc. of Dermatology and Syphilology, 201
Gallatin County (Mont.) M. Soc., 129
Gehrmann, Dr. Adolph, Fund, 128
Georgia Diabetes A., 128
  M. A. of, 131
  Soc. of Anesthesiologists, 128
  Soc. of Ophthalmology and Otolaryngology, 128
  State Health Department, 131
  Work Conf. on Science Fairs, 386
Gerontological Soc., 792
Gibbstown (N. J.) Lions Club, 1384
Governor's Comm. on Employment of the Physically Handicapped, 1315
  Comm. on Rehabilitation, 1384
Greims, James and Lorena, Fund, 1219
Gulf Coast Clinical Soc., 792
Hadassah, 613, 955
Hamm Found., 1777
Hartford, John A., Found., 1313
  (Conn.) M. Soc., 688
Hawaii Department of Health, 53
  M. A., 1133
Hawthorne S. Soc., 494
Heart A. of Winston-Salem and Forsyth County (N. C.), 386
Hektoen Inst. for M. Research, 612, 1664
Hematology Research Found., 200
Honolulu County M. Soc., 495
Horse Shoe Club, 1387
Houston (Texas), Business and Professional Women's Club of, 1555
  (Texas) Heart A., 1779
Howard University M. Alumni A., 955
Hunter, Oscar B., Memorial Award Comm., 1467
Huntington (W. Va.) Heart A., 1466
Idaho Acad. of General Practice, 128
Illinois Acad. of General Practice, 197, 688
  Heart A., 1510
  Inst. of Technology, 691
  Public Aid Commn., 1223
  State Department of Public Health, 51, 1219, 1310
  State Office of Civil Defense, 384
Indiana State M. A., 689
Indust. Health Conf. (Texas), 130
  Hygiene Found., 1133
  M. A., 1036
Inst. for Neurology and Brain Research (Venezuela), 1467
  for Psychoanalysis, 1664
  for the Crippled and Disabled, 200
  for the Handicapped, 1776
  of Aeronautical Sciences, Los Angeles Section, 493
  of Biology, 132
  of Indust. Health, 1132
  of Med. of Chicago, 197, 691, 789, 1383
  of Physical Med. and Rehabilitation, 957, 1223, 1312, 1668
  of Transportation and Traffic Engineering, 493
Internat. Acad. of Legal and Social Med., 201
  Acad. of Pathology, 1224
  Acad. of Proctology, New York Chapter, 1385
  A. of Allergology, 1554
  A. of M. Museums, 1224
  Coll. of Surgs., Panamerican Cong. of the, 201
  Colloquium on Chlorpromazine and the Neuroleptic Agents in Psychotherapy, 693
  Conf. on Phlebology, 201
  Cong. and Argentine Cong. of Bronchoesophagology, 132
  Cong. of Anatomists, 1779
  Cong. of Internal Med., 1780
  Cong. of Libraries and Documentation Centres, 1467
  Cong. of M. Professional Jurisdiction, M. Ethics, and Comparative M. Law, 132
  Cong. of Neuropathology, 613
  Cong. of Plastic Surg., 959
  Cong. of Prophylactic Med., 132
  Council for Exceptional Children, 1037
  Course on Tomography, 132
  Development Advisory Board, 1383
  Education Exchange Program, 495
  Federation of Anatomists, 1035
  Federation of University Women, 614
  General M. Cong., 959
  Harvester Company, 1384
  M. Conf. (Verona, Italy), 1221
  Physiological Cong. Trust Fund, 1223
  Professional Union, 793
  Research Council, 1780
  Soc. for the Welfare of Cripples, 1387
  Soc. of Hematology, 1314
  Soc. of Plastic Surg., 959
  Symposium on Health and Travel, 958
  Union Against the Venereal Diseases and the Treponematoses, 201
Inter-Soc. Cytology Council, 1037
Interstate Postgraduate M. A. of North America, 1037
Intestinal Research Inst., 1668
Iowa Acad. of General Practice, 51
  Heart A., 1665
Istanbul, Turkish S. Soc. of, 1313
Italian Soc. of Dermatology and Syphilology, 202
Japanese-Am. Soc. of Pathologists, 688
  Coll. of Surgs., 1313
Jefferson County (Ky.) M. Soc., 1130
Johnson & Johnson, 1665
Joint Commn. on Mental Illness and Health Inc., 1557
Jones, T. Duckett, Memorial Fund, 11
Kanawha (W. Va.) M. Soc., 1466
Kansas City Southwest Clinical Soc., 1
  M. Soc., 52, 493, 1311
  Radiological Soc., 51
  State Pediatric Soc., 51
Kenny, Sister Elizabeth, Found., 1666
Kentucky Legislative Research Commn., 52
  State M. A., 128, 129, 1464
  State Obstetrical Soc., 1035
  State Rural Health Conf., 1464
Kessler Inst. for Rehabilitation, 385
Kings County (N. Y.) Radiological Soc., 1464
  M. Soc. of the County of, 956, 1461
Kynett, Edna G., Memorial Found., 1221
Lafayette Parish (La.) M. Soc., 385
Laird Found., 1222
Lalor Found., 1387
La Presse Médicale, 1135
Latin-Am. Cong. of Pathologic Anatomy, 1388
Laurentian Hormone Conf., 54

Societies and Other Organizations—Continued
Subspecialty Board of Allergy, 1034
Tennessee Radiological Soc., 1222
  State M. A., 386
  Valley Medical Assembly, 494
Texas Acad. of General Practice, 200
  Radiological Soc., 1779
  Science Fair Work Conf., 386
  State Board of Medical Examiners, 1779
  State Department of Health, 495, 1133, 1465, 1556
33rd Degree Scottish Rite, 1556
38th Parallel M. Soc., 688
Topps Garment Manufacturing Company, 200
Tri-State M. A. of the Carolinas and Virginia, 1315
  M. Soc., 386
  Urologic Soc., 386
Tulsa (Okla.) Acad. of General Practice, 386, 957, 1312
  County (Okla.) Heart A., 957
  County (Okla.) M. Soc., 957
Twin Cities Diabetes A., 1131
United Cerebral A. of Chicago, 789
  Cerebral Palsy, 1131, 1314, 1466, 1554, 1776
  Cerebral Palsy A. of Illinois, 789
  Cerebral Palsy Research and Educational Found., 1466
  Fruit Company, 956
  Mine Workers Welfare and Retirement Fund, 1776
  Nations Children's Fund, 615
  Nations Educational, Scientific and Cultural Organization, 1779, 1781
  Nations Educational, Scientific and Cultural Organization Center of Scientific Cooperation for Latin America, 1388
  Negro Coll. Fund, 1223
U. S. Army, 688
  Atomic Energy Commn., 384, 614, 1036, 1465, 1554, 1555, 1666, 1668
  Chamber of Commerce, 198
  Department of Health, Education, and Welfare, 1466, 1467
  Mexico Border Public Health A., 793
  Office of Vocational Rehabilitation, 1133
  P. Anti-Anemia Preparations Advisory Board, 1556
  Public Health Service, 128, 129, 131, 199, 956, 1037, 1134, 1314, 1465
  State Department, 495
University of Rochester (N. Y.) M. Alumni A., 1555
Utah State Health Department, 613
  State M. A., 1036
Vermont State M. Soc., 387, 1222
Virginia Board of M. Examiners, 1222
  Council on Health and M. Care, 1667
  M. Soc. of, 691
  Soc. for Pathology, 1222
  Soc. of Ophthalmology and Otolaryngology, 1313, 1465
  State Board of Education of, 1222
  State Health Department, 1313
Visiting Nurse A. (Wis.), 130
Wangensteen, Owen H., S. Education Found., 198
Washington State Department of Health, 200, 1556
  State Heart A., 200
  State M. A., 53, 957
  State Obstetrical A., 130
  State Soc. of Internal Med., 200
Wayne County (Mich.) M. Soc., 385, 496, 1035
  search, 1385
Wenner-Gren Found. for Anthropological Re-
Western A. of Railway Surgs., 201
  Council of Sports Med., 51
  Inst. on Epilepsy, 1037
  Light and Telephone Company, 51
  Orthopedic A., 957, 1553
  Soc. for Pediatric Research, 690
  Soc. for the Study of Sterility, 958
  Soc. of Electroencephalography, 1037
  S. A., 1315
West Virginia Farm Bureau, 295
  Heart A., 614
  Hosp. A., 1466
  Science Fair Work Conf., 386
  State Department of Health, 495
  State M. A., 495, 791, 1466
  Tuberculosis and Health A., 1466
Whitney, Helen Hay, Found., 1466
Wilmington (Del.) Volunteer Bureau, 955
Winnebago County (Ill.) M. Soc., 788
Wisconsin Acad. of General Practice, 1386
  Alumni Research Found., 1386
  Anti-Tuberculosis A., 1036
  A. for Public Health, 130
  Epilepsy League, 1466
  State Board of Vocational and Adult Education, 1466
Wisconsin—Continued
  State Department of Public Instruction, 495, 957
  State M. Soc. of, 130, 691, 1133
Woman's Auxiliaries: Indiana State M. A., 689; Jefferson County (Ky.) M. Soc., 52; M. Soc. of Delaware, 688; Michigan State M. Soc., 198; San Francisco M. Soc., 788; Washington State M. A., 53
Wood, Leonard, Memorial (Am. Leprosy Found.), 792
World Health Organization, 1464, 1665, 1780
Yale M. Soc., 612, 1129
Zaharias, Babe Didrikson, Fund, 1465

T

TEM: See Triethylene Melamine
TSH: See Thyrotropin
TAARNHØJ DECOMPRESSION
  of posterior root for trigeminal neuralgia, [Woolsey] *1713
TABES DORSALIS
  complications: Charcot joints, testosterone for, 153
TABLETS
  effervescent, as scource of carbon dioxide for uterotubal insufflation, [Rubin] *1190
TAKAYASHU'S SYNDROME
  pulseless disease, [Trias de Bes] 1794—ab
TAMPON
  cervix cancer from? 154
  for mass screening to detect cervical cancer, [Thornton] *1177
TANTALUM
  to repair abdominal wall, [Petrina] 1798—ab
TAPAZOLE: See Methimazole
TAX: See Medicolegal Abstracts at end of letter M
TAXPAYERS' Federation of Illinois pamphlet on how to write your congressman, 1021—E
TAY-Sachs Disease: See Idiocy, amaurotic
TECHNOLOGISTS
  medical, schools for, *603
  x-ray, schools for, *604
TEETH
  caries relation to diet; Amazon study, 129
  caries; sugar, diet and heredity in, 1335
TELANGIECTASIA
  heredity hemorrhagic (Osler's), arteriovenous pulmonary aneurysm in, [Dienemann] 718—ab
  progressive, with skin atrophy, in child 5, 536
TELEPAQUE. See Iopanoic Acid
TELEVISION
  aids on eye, A.M.A. and National Society for Prevention of Blindness, 381
  A.M.A. activities, 886; 920; 921
  closed-circuit, N. Y., 1554
  color, at Boston Clinical Meeting, 865
  color, for Army Medical Center, 501
  health aspects, physicians and schools discuss, 1125—E; 1126
  health tips presented by A M A., 118
  "March of Medicine" program plans, 1128; (reruns in Chicago) 1464
  new series on infant care, A.M.A. cooperating, 783
  review of forthcoming programs on medical subjects, 57; 135; 204; 390; 500; 618; 695, 795; 961; 1040; 1137, 1226; 1318; 1390; 1469; 1559; 1671; 1783
TENDONS
  areflexia in diabetes, [Garland] 1795—ab
  inflammation, subdeltoid, x-ray for, [Shoss] 1697—ab
TENIASIS
  treatment, quinacrine, 233; (by duodenal catheter, Turkey) 623
TENSION: See Stress
TERMINOLOGY: See also "Words and Phrases" under Medicolegal Abstracts at end of letter M
  "clinic," proper and ethical use, 1254
  "delouse" and "deflea" vs. "louse" and "flea," England, 64
  propose international definitions of cancer, Switzerland, 1047
  savor vs. flavor, [Clark & Dodge] *1721
  "tranquilizing agents," from Greek word *ataraktos*, [Bauer] 808—C
  UNESCO aids standardization of anatomic terms, 1779
TERRAMYCIN: See Oxytetracycline
TESTES
  estrogens effect on in prostate cancer, Austria, 699
  Hormone: See Androgens
  loss of one, other atrophied; hot flashes and sweats after, 535
  undescended, optimum time for surgery, [Hinman] 147—ab
  undescended, pituitary changes in, N. Z., 396
  undescended, therapy in normal 3-year-old boy? 1173
TESTIMONY
  expert, A.M.A. Law Department report, 896
TESTOSTERONE: See Androgens
TETANUS
  diphtheria-pertussis with, for infants, [Barr] 1163—ab
  immunization (combined), England, 210
  immunization for boy who had urticaria, arthralgia and mild edema after previous injections, 1255
  immunization for football players, using livestock field, 828
  immunization, serum-sickness and local reactions from, [Moynihan] 972—ab
  toxoid and typhoid paratyphoid in same injection? 94
  toxoid vs. antitoxin; alum precipitated vs. fluid toxoids, 1699
  treatment, mephenesin alone and with chlorpromazine, [Adriani] 972—ab
TETANY
  parathyroid, calcium lactate plus vitamin D for, 94
  postoperative, insensitivity to vitamin D in, [Dent] 1483—ab
TETRACYCLINE
  clinical use, [McCorry] 149—ab
  to prevent rheumatic fever in penicillin-sulfonamide sensitivity, 633
  toxicity: enterocolitis fatal after, Switzerland, 1050
  treatment of pneumonia, [Bakir] 1678—ab
  treatment, staphylococcic complications, [Brodie] 813—ab
TETRACYN: See Tetracycline
TETRAETHYLTHIURAMDISULFIDE: See Disulfiram
THALLIUM
  poisoning from rodenticides, Sweden, 510
THERAPEUTICS
  hazards of, [Barr] *1452
  powerful placebo, [Beecher] *1602
THIAMINE
  deficiency from active yeast? 633; (reply: lowers blood sugar with no deficiency) [McClendon] 1804
THIAZOLSULFONE
  N.N.R., 1296
THIOCOLCHICINE: See N-Desacetylthiocolchicine
THIOPENTAL SODIUM
  oxygen for respiratory depression from, [Dillon & Darsie] *1114
THIOSEMICARBAZONE
  treatment plus isoniazid in tuberculosis, England, 64
THIOURACIL
  derivatives for thyrotoxic children, [Kunstadter] 1491—ab
THOMPSON OPERATION
  for coronary disease, [Beck & Leighninger] *1264
THORACIC DUCT
  lesions, retroperitoneal anastomosis to hemiazygos vein for, [Brewer] 715—ab
THORACOPLASTY: See Thorax surgery
THORACOTOMY: See Thorax surgery
THORAX
  chest diseases, differential diagnosis, [Banyai] *1272
  chest diseases (occupational), vascular pathology, [Schepers] 528—ab
  chest wall syndrome, pain resembles cardiac pain, [Prinzmetal & Massumi] *177
  chest x-ray every 3 months safe? 980
  chest x-rays, Nellie Lutcher aids drive, England, 1565
  chest x-ray supplements tuberculin testing, England, 209
  chest x-rays to diagnose tuberculosis and other lesions, England, 702
  injuries, management, [Blades] *419
  rounded lesions, [Springer] 1697—ab
  surgery, pneumothorax and thoracoplasty in tuberculosis, [Rabino] 627—ab
  surgery, thoracotomy (exploratory) in chronic mediastinal lymphadenitis, [Leech] 1065—ab
  tumor formation, [Unverricht] 1406—ab
  wall defect, full-thickness skin graft to close, [Dunavant] *1202
THORAZINE: See Chlorpromazine
THROAT
  infection, antibiotic specificity, [Goldstein] 1417—ab
  sore, in unusual epidemic, England, 507
THROMBOANGIITIS OBLITERANS
  coronary localization, [Capra Marzani] 1237—ab
  surgical treatment, sympathectomy: clinical condition parallel oscillometer? 154
THROMBOCYTES: See Blood platelets
THROMBOCYTOPENIA: See Purpura, thrombopenic
THROMBOEMBOLISM: See Thrombosis

Societies and Other Organizations—Continued
Legislative Drafting Research Fund (Columbia University), 1555
  Research Commn. (Ky.), 1384
Leukemia Soc., Inc., 1780
Lewis & Clark (Mont.) M. Soc., 129
Liberty Mutual Insurance Company, 1665
Life Insurance M. Research Fund, 131
Lilly, Eli, and Company, 384
Link Found., 1134
Lipotropic Research Fund, 1555
Lippincott, J. B., Company, 493
Lockheed Aircraft Corporation, 688
Loma Linda Found. Fund, 1463
Lone Star State M. A. (Texas), 1133
Long Island (N. Y.) Psychiatric Soc., 1221
Los Angeles County Air Pollution Control Dist., 1034
  County Board of Supervisors, 1034
  County M. A., 51, 1034, 1129, 1383, 1463, 1553
  County Phys. Aid A., 1129
  Doctors' Symphony Orchestra, 1129
  Obstetrical and Gynecological Soc., 1310
  Phys.' Art Soc., 1463
  Radiological Soc., 1310
Louisiana, Radiological Soc. of, 1035
  State M. Soc., 198
  S. Soc., 1035
  Third Dist. M. Soc. of, 385
Louisville (Ky.) Bar A., 1130
  (Ky.) Law Science Found., 1130
Macy, Josiah Jr., Found., 1666
Madison County (N. Y.) M. Soc., 1778
Maine M. A., 1131
M and R Research Conf., 690
Maricopa County (Ariz.) M. Soc., 1129
Markle, John and Mary R., Found., 1037
Maryland Acad. of General Practice, 789
  M. and Chirurgical Faculty of the State of, 792
Massachusetts School Phys., A., 1035
  Soc. of Examining Phys., 689
M. Alumni A. of the University of Southern California School of Med., 1664
  Coll. of Virginia Alumni A., West Virginia Chapter, 1222
  Library A., Midwest Regional Group, 386
  Research Found. of Texas, Inc., 1222
  Research Inst. (City of Hope M. Center), 131
  Soc. Executives Conf., 1037
  Television Found. for E. R. Squibb and Sons, 1554
Mellon Inst. of Indust. Research, 1223
Menninger Found., 1219
Mental Health Research Inst., 1310, 1664, 1780
Metropolitan Life Insurance Company, 200, 1467, 1780
Mexican A. of Pathologists, 1388
Miami, Greater, Heart A. of, 1777
Michael Reese Research Found., 51
Michigan Allergy Soc., 1131
  Children's Fund of, 1035
  Department of Health, 1384, 1464
  Found. for M. and Health Education, 198
  Neuropsychiatric Inst., 1384
  Office of Civil Defense, 1131
  Rheumatism Soc., 496
  State M. Soc., 52, 198, 496, 1777
Mid-Continent Psychiatric A., 386
Midwest Conf. on Rheumatic Diseases, 496
Milwaukee Acad. of Med., 1556
Minnesota Department of Health, 1777
  State Board of Health, 1131
Mississippi Acad. of General Practice, 1311
  Soc. of Anesthesiologists, 1035
  Valley Conf. on Tuberculosis, 615, 1131
  Valley M. Soc., 200, 1311
Monroe, County of (N. Y.), M. Soc. of the, 129, 1666
Montana M. A., 129, 956, 1132
  Phys. Service, 129
  Soc. of Pathologists, 129
Monterey County (Calif.) Heart A., 493
Montgomery County (Ohio) M. Soc., 1036
  County (Ohio) Soc. of Cancer Clinic, 1036
Montreal (Canada) Clinical Soc., 959
  (Canada) Medico-Chirurgical Soc., 959
Multiple Sclerosis Found. of America, 1383, 1553, 1664
Muscular Dystrophy As. of America, 1387, 1776
Museum of Science and Industry, 197
Napa County (Calif.) M. Soc., 51
Nassau (N. Y.) *Radiological Soc.*, 1465
Nat. Acad. of Sciences, 615
  Advisory Cancer Council, 1131, 1221
  Advisory Neurological Diseases and Blindness Council, 1035
Nat.—Continued
  Agricultural Chemicals A., 1134
  A. for Mental Health, 386, 958, 1556
  Cancer Inst., 1222
  Drug Company, 1314
  Found. for Infantile Paralysis, 1556, 1557, 1668, 1776
  Fund for M. Education, 1388
  Industries for the Blind, 1133
  Inst. for Prevention of Infectious Diseases, 688
  Inst. of Arthritis and Metabolic Diseases, 1220, 1221
  Inst. of Cardiology, 693
  Inst. of Mental Health, 792
  Insts. of Health, 791, 1666
  M. A., 1315, 1557
  M. Fellowships, Inc., 1557
  Multiple Sclerosis Soc., 1035, 1315, 1387, 1776
  Multiple Sclerosis Soc., Chicago Chapter, 1777
  Noise Abatement Symposium, 691
  Office of Vital Statistics, 54, 132, 201, 387, 497, 692
  Professional Socs. of Gynecologists and Obstetricians of the World, 793
  Research Council, 615, 1223, 1556
  Safety Cong. and Exposition, 692
  Science Found., 1223, 1386
  Soc. for Crippled Children and Adults, 1315, 1665
  Soc. for M. Research, 1780
  Soc. for the Prevention of Blindness, 958, 1385
  Tay-Sachs A., 1556
  Tuberculosis A., 496, 615, 1037, 1132, 1668
  Vitamin Found., 690, 691, 1036, 1134
Nebraska Heart A., 385
  Psychiatric Inst., 199, 1464
  State M. A., 385
  Tuberculosis A., 385
Neurosurgical Soc. of America, 1224
New England Diabetes A., 789, 1131, 1311
  Health Education A., 1315
  Roentgen Ray Soc., 958
New Hampshire M. Soc., 387
New Jersey, M. Soc. of, 1132
  Soc. of Clinical Pathologists, 1384
  State Department of Health, 956, 1384
New York Acad. of Med., 199, 385, 613, 789, 1312, 1385, 1465, 1666
  Acad. of Sciences, 1385
  Cancer Soc., 1035, 1778
  City Department of Health, 1465, 1555, 1668, 1778
  City Department of Hosps., 1555, 1778
  City of, Coordinating Council of the County M. Socs. of the, 199
  City, Welfare and Health Council of, 494, 690
  County of, M. Soc. of the, 1132
  Diabetes A., Clinical Soc. of, 790
  Doctors' Orchestral Soc. of, 1220
  Greater, Pharm. Council of, 199
  Heart A., 200, 1312
  Inst. of Clinical Oral Pathology, 1385
  Soc. for Clinical Ophthalmology, 1385
  Soc. of Neurosurgery, 1035
  State Acad. of General Practice, 690
  State Acad. of *General Practice*, Chapters: Capital Dist., 1035; Erie County, 385; Nassau County, 1035
  State Department of Health, 1312, 1555
  State Department of Mental Hygiene, 1220
  State Office of M. Defense, 52
  State Psychiatric Inst., 1385
  State Soc. of Anesthesiologists, 1554
  Tuberculosis and Health A., 1555, 1778
  Western, State Heart A., 385
North Am. Cyanamid Limited, Lederle Laboratories Div., 55
North Carolina Acad. of General Practice, 1221
  Eye, Ear, Nose, and Throat Soc., 53
  Science Fair Work Conf., 386
Oak Ridge (Tenn.) Inst. of Nuclear Studies, 386, 614, 1222, 1223, 1555, 1779
Ohio Acad. of General Practice, 53, 690
  Acad. of General Practice, Dist. No. 2, 1036
Oklahoma Acad. of General Practice, 957
  City Clinical Soc., 790
  State M. Assistants Soc., 1313
Old Dominion Found., 1222
Omaha Mid-West Clinical Soc., 789
Orange County (Calif.) M. A., 128
  County (Fla.) M. Soc., 1664
Oregon Acad. of General Practice, 130
  State M. Soc., 130, 1036
Palm Beach County *(Fla.) M. Soc., 1664*
Pan Am. A. of Ophthalmology, 1467
  Cong. of Ophthalmology, 1467
  M. A., 959
  M. Social Convention, 615
  Sanitary Bureau, 1776
Paper Cup and Container Inst., 1668
Parenteral Drug A., 791
Parents A. for Cerebral Palsy Children, 789
Parke, Davis & Company, 385
Paxton (Ill.) Chamber of Commerce, 384
Pennsylvania A. of Clinical Pathologists, 53
  M. Soc. of the State of, 130, 1036
  Radiological Soc., 199
  Railroad, 1313
  Southeastern, Heart A. of, 1313
  State *Department* of Health, 1221
Perry County (Ky.) Health Department, 1131
Phi Beta Pi, 1777
  Beta Pi, Theta Chapter, 788
  Chi Fraternity, 1777
  Chi M. Fraternity, 1035
  Delta Epsilon, 1777
  Delta Epsilon, Chapters: Alpha Alpha, 956; Alpha Beta, 956; Beta Tau, 956
  Delta Epsilon Found., 1219
Philadelphia City Council, 790
  Coll. of Phys. of, 494, 1221
  County M. Soc., 1036
  Department of Public Health, 790
  Pediatric Soc., 1667
  Proctologic Soc., 1667
  Rheumatism Soc., 790
  Roentgen Ray Soc., 494
Phi Lambda Kappa M. Fraternity, 1667
Philippine Coll. of Surgs., 1313
  M. A., 1220
Phi Rho Sigma, Chi Theta Chapter, 1778
Picker, James, Found., 615
Pittsburgh, Clinical Pathological Soc. of, 53
  Indust. M. A. of, 1036
  Pediatric Soc., 1133
  Roentgen Soc., 1036
  S. Soc., 494
Polytechnic Inst., 1220
Porter, John M., Student Loan Fund, 1311
President's Comm. for Traffic Safety, 1314
  Comm. on Employment of the Physically Handicapped, 1315
Providence Hosp. Alumni A., 1219
Psychiatric Inst. (Florida), 1553
Queensboro (N. Y.) Tuberculosis and Health A., 1778
Radiological Soc. of North America, 1387
Raleigh (N. C.) Acad. of Med., 790
Rensselaer Polytechnic Inst., 791
Riverside County (Calif.) M. A., 128
Rochester (N. Y.) Dietetic A., 129
  Monroe County (N. Y.) Nutrition Comm., 129
Rockefeller Found., 615, 1465, 1556
Rocky Mountain Radiological Soc., 1467
Runyon, Damon, Memorial Fund for Cancer Research, 1036, 1667
Rural Health Conf. (W. Va.), 495
Sackett, Samuel, Found., 789
St. John's Inst. for Mental Health, 1777
St. Louis Heart A., 199
  M. Soc., 1311
San Bernardino County (Calif.) M. Soc., 128
San Diego County (Calif.) M. Soc., 788
San Francisco Heart A., 493
  M. Soc., 788
Sangamon County (Ill.) M. Soc., 1310
San Mateo County (Calif.) Heart A., 493
Santa Clara County (Calif.) Heart A., 493
Scott County (Iowa) M. Soc., 1464
Seaboard & Western Airlines, 1780
Sedgwick County (Kans.) M. Soc., 493, 1384
Service Memorial Insts., 495
Shawnee (Okla.) Knights of Columbus, 53
Sisters of Charity of Nazareth, 1553
Sloan-Kettering Inst., 690
Smith, Kline & French Found. of Philadelphia, 1667
Sociedad Mexicana de Cirugia Neurologica, 792
Soc. for Clinical and Experimental Hypnosis, 1314
  for Pediatric Research, 1224
  for Research on the Reticuloendothelial System, 792
  of Biological Psychiatry, 1224
  of the Sigma Xi, Hawaii Chapter, 495
Solomon, Dr. Jerome D., Memorial Research Found., 1310
South Carolina Acad. of General Practice, 386
  M. A., 131
  Radiological Soc., 1221
  Soc. of Ophthalmology and *Otolaryngology*, 53
  State Health Department, 131
Southern M. A., 1135
  Soc. of Cancer Cytology, 1135
  S. A., 1314
  Thoracic S. A., 1314
  Trudeau Soc., 131
Southwestern M. A., 1129, 1669
Spastic Paralysis Aid Found., 789
Standard Oil Company (N. J.), 1313
Study Group on *Poliomyelitis Vaccination*, 1780

Societies and Other Organizations—Continued
Subspecialty Board of Allergy, 1034
Tennessee Radiological Soc., 1222
  State M. A., 386
  Valley Medical Assembly, 494
Texas Acad. of General Practice, 200
  Radiological Soc., 1779
  Science Fair Work Conf., 386
  State Board of Medical Examiners, 1779
  State Department of Health, 495, 1133, 1465, 1556
33rd Degree Scottish Rite, 1556
38th Parallel M. Soc., 688
Topps Garment Manufacturing Company, 200
Tri-State M. A. of the Carolinas and Virginia, 1315
  M. Soc., 386
  Urologic Soc., 386
Tulsa (Okla.) Acad. of General Practice, 386, 957, 1312
  County (Okla.) Heart A., 957
  County (Okla.) M. Soc., 957
Twin Cities Diabetes A., 1131
United Cerebral A. of Chicago, 789
  Cerebral Palsy, 1131, 1314, 1466, 1554, 1776
  Cerebral Palsy A. of Illinois, 789
  Cerebral Palsy Research and Educational Found., 1466
  Fruit Company, 956
  Mine Workers Welfare and Retirement Fund, 1776
  Nations Children's Fund, 615
  Nations Educational, Scientific and Cultural Organization, 1779, 1781
  Nations Educational, Scientific and Cultural Organization Center of Scientific Cooperation for Latin America, 1388
  Negro Coll. Fund, 1223
U. S. Army, 688
  Atomic Energy Commn., 384, 614, 1036, 1465, 1554, 1555, 1666, 1668
  Chamber of Commerce, 198
  Department of Health, Education, and Welfare, 1466, 1467
  Mexico Border Public Health A., 793
  Office of Vocational Rehabilitation, 1133
  P. Anti-Anemia Preparations Advisory Board, 1556
  Public Health Service, 128, 129, 131, 199, 956, 1037, 1134, 1314, 1465
  State Department, 495
University of Rochester (N. Y.) M. Alumni A., 1555
Utah State Health Department, 613
  State M. A., 1036
Vermont State M. Soc., 387, 1222
Virginia Board of M. Examiners, 1222
  Council on Health and M. Care, 1667
  M. Soc. of, 691
  Soc. for Pathology, 1222
  Soc. of Ophthalmology and Otolaryngology, 1313, 1465
  State Board of Education of, 1222
  State Health Department, 1313
Visiting Nurse A. (Wis.), 130
Wangensteen, Owen H., S. Education Found., 198
Washington State Department of Health, 200, 1556
  State Heart A., 200
  State M. A., 53, 957
  State Obstetrical A., 130
  State Soc. of Internal Med., 200
Wayne County (Mich.) M. Soc., 385, 496, 1035
  search, 1385
Wenner-Gren Found. for Anthropological Re-
Western A. of Railway Surgs., 201
  Council of Sports Med., 51
  Inst. on Epilepsy, 1037
  Light and Telephone Company, 51
  Orthopedic A., 957, 1553
  Soc. for Pediatric Research, 690
  Soc. for the Study of Sterility, 958
  Soc. of Electroencephalography, 1037
  S. A., 1315
West Virginia Farm Bureau, 295
  Heart A., 614
  Hosp. A., 1466
  Science Fair Work Conf., 386
  State Department of Health, 495
  State M. A., 495, 791, 1466
  Tuberculosis and Health A., 1466
Whitney, Helen Hay, Found., 1466
Wilmington (Del.) Volunteer Bureau, 955
Winnebago County (Ill.) M. Soc., 788
Wisconsin Acad. of General Practice, 1386
  Alumni Research Found., 1386
  Anti-Tuberculosis A., 1036
  A. for Public Health, 130
  Epilepsy League, 1466
  State Board of Vocational and Adult Education, 1466
Wisconsin—Continued
  State Department of Public Instruction, 495, 957
  State M. Soc. of, 130, 691, 1133
Woman's Auxiliaries: Indiana State M. A., 689; Jefferson County (Ky.) M. Soc., 52; M. Soc. of Delaware, 688; Michigan State M. Soc., 198; San Francisco M. Soc., 788; Washington State M. A., 53
Wood, Leonard, Memorial (Am. Leprosy Found.), 792
World Health Organization, 1464, 1665, 1780
Yale M Soc., 612, 1129
Zaharias, Babe Didrikson, Fund, 1465

T

TEM: See Triethylene Melamine
TSH: See Thyrotropin
TAARNHØJ DECOMPRESSION
  of posterior root for trigeminal neuralgia, [Woolsey] *1713
TABES DORSALIS
  complications: Charcot joints, testosterone for, 153
TABLETS
  effervescent, as scource of carbon dioxide for uterotubal insufflation, [Rubin] *1190
TAKAYASHU'S SYNDROME
  pulseless disease, [Trias de Bes] 1794—ab
TAMPON
  cervix cancer from? 154
  for mass screening to detect cervical cancer, [Thornton] *1177
TANTALUM
  to repair abdominal wall, [Petrina] 1798—ab
TAPAZOLE: See Methimazole
TAX: See Medicolegal Abstracts at end of letter M
TAXPAYERS' Federation of Illinois pamphlet on how to write your congressman, 1021—E
TAY-Sachs Disease: See Idiocy, amaurotic
TECHNOLOGISTS
  medical, schools for, *603
  x-ray, schools for, *604
TEETH
  caries relation to diet; Amazon study, 129
  caries; sugar, diet and heredity in, 1335
TELANGIECTASIA
  heredity hemorrhagic (Osler's), arteriovenous pulmonary aneurysm in, [Dienemann] 718—ab
  progressive, with skin atrophy, in child 5, 536
TELEPAQUE. See Iopanoic Acid
TELEVISION
  aids on eye, A.M.A. and National Society for Prevention of Blindness, 381
  A.M.A. activities, 886; 920; 921
  closed-circuit, N. Y., 1554
  color, at Boston Clinical Meeting, 865
  color, for Army Medical Center, 501
  health aspects, physicians and schools discuss, 1125—E; 1126
  health tips presented by A.M.A., 118
  "March of Medicine" program plans, 1128; (reruns in Chicago) 1464
  new series on infant care, A.M.A. cooperating, 783
  review of forthcoming programs on medical subjects, 57; 135; 204; 390; 500; 618; 695; 795; 961; 1040; 1137; 1226; 1318; 1390; 1469; 1559; 1671; 1783
TENDONS
  areflexia in diabetes, [Garland] 1795—ab
  inflammation, subdeltoid; x-ray for, [Shoss] 1697—ab
TENIASIS
  treatment, quinacrine, 233; (by duodenal catheter, Turkey) 623
TENSION: See Stress
TERMINOLOGY: See also "Words and Phrases" under Medicolegal Abstracts at end of letter M
  "clinic," proper and ethical use, 1254
  "delouse" and "deflea" vs. "louse" and "flea," England, 64
  propose international definitions of cancer, Switzerland, 1047
  savor vs. flavor, [Clark & Dodge] *1721
  "tranquilizing agents," from Greek word *ataraktos*, [Bauer] 808—C
  UNESCO aids standardization of anatomic terms, 1779
TERRAMYCIN: See Oxytetracycline
TESTES
  estrogens effect on in prostate cancer, Austria, 699
  Hormone: See Androgens
  loss of one, other atrophied; hot flashes and sweats after, 535
  undescended, optimum time for surgery, [Hinman] 147—ab
  undescended, pituitary changes in, N. Z., 396
  undescended, therapy in normal 3-year-old boy? 1173
TESTIMONY
  expert, A.M.A. Law Department report, 896
TESTOSTERONE: See Androgens
TETANUS
  diphtheria-pertussis with, for infants, [Barr] 1163—ab
  immunization (combined), England, 210
  immunization for boy who had urticaria, arthralgia and mild edema after previous injections, 1255
  immunization for football players, using livestock field, 828
  immunization, serum-sickness and local reactions from, [Moynihan] 972—ab
  toxoid and typhoid paratyphoid in same injection? 94
  toxoid vs. antitoxin; alum precipitated vs. fluid toxoids, 1699
  treatment, mephenesin alone and with chlorpromazine, [Adriani] 972—ab
TETANY
  parathyroid, calcium lactate plus vitamin D for, 94
  postoperative, insensitivity to vitamin D in, [Dent] 1483—ab
TETRACYCLINE
  clinical use, [McCorry] 149—ab
  to prevent rheumatic fever in penicillin-sulfonamide sensitivity, 633
  toxicity: enterocolitis fatal after, Switzerland, 1050
  treatment of pneumonia, [Bakir] 1678—ab
  treatment, staphylococcic complications, [Brodie] 813—ab
TETRACYN: See Tetracycline
TETRAETHYLTHIURAMDISULFIDE: See Disulfiram
THALLIUM
  poisoning from rodenticides, Sweden, 510
THERAPEUTICS
  hazards of, [Barr] *1452
  powerful placebo, [Beecher] *1602
THIAMINE
  deficiency from active yeast? 633; (reply: lowers blood sugar with no deficiency) [McClendon] 1804
THIAZOLSULFONE
  N.N.R., 1296
THIOCOLCHICINE: See N-Desacetylthiocolchicine
THIOPENTAL SODIUM
  oxygen for respiratory depression from, [Dillon & Darsie] *1114
THIOSEMICARBAZONE
  treatment plus isoniazid in tuberculosis, England, 64
THIOURACIL
  derivatives for thyrotoxic children, [Kunstadter] 1491—ab
THOMPSON OPERATION
  for coronary disease, [Beck & Leighninger] *1264
THORACIC DUCT
  lesions, retroperitoneal anastomosis to hemiazygos vein for, [Brewer] 715—ab
THORACOPLASTY: See Thorax surgery
THORACOTOMY: See Thorax surgery
THORAX
  chest diseases, differential diagnosis, [Banyai] *1272
  chest diseases (occupational), vascular pathology, [Schepers] 528—ab
  chest wall syndrome, pain resembles cardiac pain, [Prinzmetal & Massumi] *177
  chest x-ray every 3 months safe? 980
  chest x-rays, Nellie Lutcher aids drive, England, 1565
  chest x-ray supplements tuberculin testing, England, 209
  chest x-rays to diagnose tuberculosis and other lesions, England, 702
  injuries, management, [Blades] *419
  rounded lesions, [Springer] 1697—ab
  surgery, pneumothorax and thoracoplasty in tuberculosis, [Rabino] 627—ab
  surgery, thoracotomy (exploratory) in chronic mediastinal lymphadenitis, [Leech] 1065—ab
  tumor formation, [Unverricht] 1406—ab
  wall defect, full-thickness skin graft to close, [Dunavant] *1202
THORAZINE: See Chlorpromazine
THROAT
  infection, antibiotic specificity, [Goldstein] 1417—ab
  sore, in unusual epidemic, England, 507
THROMBOANGIITIS OBLITERANS
  coronary localization, [Capra Marzani] 1237—ab
  surgical treatment, sympathectomy; clinical condition parallel oscillometer? 154
THROMBOCYTES: See Blood platelets
THROMBOCYTOPENIA: See Purpura, thrombopenic
THROMBOEMBOLISM: See Thrombosis

THROMBOPHLEBITIS
  chronic, trypsin for, [Wildman] 1681—ab
  migrans and visceral cancer, [Durham] 1061—ab
THROMBOSIS
  anticoagulants to prevent, [von Brandis] 79—ab; (after gynecologic surgery) [Soergel; Röttger] 523—ab; [Scharpff] 625—ab
  auricular, relation to mitral valvotomy, [Belcher] 1686—ab
  cerebral, and senile chorea, reserpine for, [Lemmon] 1148—C
  cerebral, BAL for, [Romualdi] 83—ab
  cerebral, cortisone for, [Russek & others] *102
  cerebral, possible in man 81 with headache, irregular temperature, and numb hands and feet, 534
  coronary (acute), request information, [White] 1148—C
  coronary, diet to prolong life in, [Morrison] *1425
  coronary, risk after bradycardia during anesthesia? 828
  coronary, tobacco in etiology, [Sigler] 1682—ab
  coronary, with myocardial infarction; treatment, [Wood & others] *635
  hazard after ACTH and cortisone in hypercholesteremia, [Adlersberg & others] *1731
  knee flexion in hospital bed cause? 535
  mural, (Diagnostic Problems) [Plimpton & Gambino] *671; (comment) *673
  of abdominal aorta, new sign, [Covey] 72—ab
  treatment, heparin, type recommended, 1803
  treatment, Sintrom, [Moeschlin] 408—ab
  treatment, Tromexan and Marcoumar, [Iversen] 820—ab
  venous (multiple), in pancreatic disease, [Berk] *1079
THYMUS
  disease and tumor formation, [Keynes] 77—ab
THYROID
  blocking agent, endemic goiter from, [Clements] 1484—ab
  cancer in children and adolescents after irradiation, [Clark] *1007
  cancer, I^{131} for, [Ruckensteiner] 1160—ab; [Russo], 1168—ab
  crisis, chlorpromazine plus cooling in, [Hunter] *814—ab*
  enlarged, could cause hand numbness, 1077
  euthyroid cardiac cases, I^{131} for, [Jaffe & others] *434
  exophthalmos and, [Kutschera-Aichbergen] 1060—ab
  extract, prolonged use, auricular fibrillation after, [Hellman] *25
  fetal, I^{131} accumulation in, [Hodges] 85—ab
  function after hypophysectomy, [Li] 1409—ab
  function and cobalt, [Kriss & others] 708—C; [Armstrong] 1480—C
  function, protein-bound iodine to evaluate, [Skanse] 1681—ab
  I^{131} uptake in euthyroid patients [Silver & others] *1
  inflammation (acute), typhoid complicating, Turkey, 1051
  status during thyroid extract, TSH and I^{131} to determine, 829
  surgery for hyperthyroidism, [Clark & Rule] *995
  surgery for toxic goiter, vegetable substances in preparing, [Sittig] 223—ab
  tumors, sarcoma, [Novaes] 1680—ab
THYROTOXICOSIS: See Goiter, Toxic
THYROTROPIN (TSH; Thyrotropic Hormone)
  increased in exophthalmos, [Kutschera-Aichbergen] 1060—ab
  I^{131} and, to determine thyroid status during thyroid extract therapy, 829
TIBIA
  deforming osteochondrosis of, in children, [Enklaar] 725—ab
  fractures, end-result observations on treatment, [Urist] *1088
  regenerate from proximal and distal epiphyses, in boy 2? 1699
TIC *Douloureaux*: See Neuralgia, trigeminal
TINEA
  capitis, allow child to use public swimming pool? 234
TISSUES
  culture isolation of Coxsackie viruses in aseptic meningitis, [Kirby & Evans] *743
  homotransplantation, medico-legal aspects, (Medicine and the Law) [Vestal & *others*] *487
  injuries after x-ray and radium therapy, [Koch] 632—ab
  mycelial *forms* of coccidioides immitis in, [Fiese] 822—ab
TOBACCO
  in etiology of cancer in mice; tars effect on skin and smoke on lungs, England, 392
  in etiology of degenerative coronary disease [Sigler] 1682—ab
  insecticides hazardous? Cause aplastic anemia? 1802
TOBACCO—Continued
  smoke abatement, problem of smoking, [Gordon] *511
  smoking effect on bronchitis incidence, England, 1474; [Oswald] 1794—ab
  smoking in origin of lung cancer, [Ringertz] 515—ab; (England) 1323; (relation to air pollution) [Stocks] 1679—ab
  tar, distribution and absorption in respiratory tract, [Ermala] 732—ab
TOES
  second, chronic nontraumatic dislocation, in *older obese women*, 1174
TOLSEROL: See Mephenesin
TOLULEXIN: See Mephenesin
TOMOGRAPHY
  international course (3rd), in Italy, 132
TONOMETRY
  electronic tonometer, [Ascher] 808—C
  to detect early glaucoma, [Havener & others] 213—C
TONSILLECTOMY
  advised in 3rd episode of retinitis with macular edema? 1424
  poliomyelitis and, [Medical Research Council] 521—ab
  respiratory disease relation to, in children, [McCorkle] 146—ab
TONSILS
  tonsillitis and splenomegaly, [Cronk] 1484—ab
TORNIQUET
  release of, time intervals, 828
TOXEMIA
  burn complication, [Artz & Soroff] *411
TOXICOLOGY: See Poisoning; under names of *specific substances*
TOXICOSIS: See Dehydration
TRACHEA
  fractures in thorax injuries, [Blades] *419
  tracheobronchial secretion retained, dangers; management, [Ransdell] 1687—ab
TRACHOMA
  antitrachoma drives in the world, 615
  Chibret Gold Medal for essay, 693
  treatment, chloromycetin in various concentrations, [Mikuni] 229—ab
  WHO action against, 1049
TRACTION
  lumbar, eliminate factors preventing stretch, [Judovich] *549; (reply) [Varco] 1676—C
TRAFFIC Accidents: See Automobiles
TRAFURIL
  reaction in rheumatic fever, [Saslaw] *653
TRANQUILIZING AGENTS, derivative of Greek word *ataraktos*, [Bauer] 808—C
TRANSILLUMINATOR
  for retinal detachment and surgery, [Berens] *1532
TRANSPLANTATION: See under Surgery
TRAUMA
  brain concussion, serum proteins in, Austria, 1473
  causalgia from, chlorpromazine for, [Dabbs & Peirce) *1626
  cranial injury progressive, neuropathologists discuss, 1230
  dorsolumbar vertebral *fractures* with cord lesions, columnotomy for, [Renes] 1490—ab
  esophagus rupture from, [Overstreet] 814—ab
  face injuries, primary care, [Blocker] *422
  in cancer etiology, Switzerland, 1050
  Industrial: See Industrial Accidents
  kidney insufficiency after, treatment, [Catlow] 147—ab
  neck and shoulder pain from, [Krusen] *1282
  of skull (closed), [Verjaal] 522—ab
  plan for more blood in disaster, [Akeroyd & Crosby] *424
  psychological reactions in mass casualties, [Caveny] *427
  testis loss from; other atrophied; hot flashes and sweats afterwards, 535
  thorax injuries, management, [Blades] *419
TRAVEL
  international, immunization information by U.S.P.H.S., 136
  International Symposium on Health and Travel, first, 958
  vaccination certificates, role of physician and health officer, 852—E; [Miller] 1478—C
TRENCH Mouth: See Angina, Vincent's
TRENDELENBURG POSITION
  for surgery not necessary with muscle relaxants, England, 142
  in lumbar traction, [Judovich] *549; (reply) [Varco] 1676—C
TREPONEMA
  immobilization test to diagnose syphilis, (reply) [Hartman] 738
TRICHINOSIS
  lamb or mutton cause? 738
TRICHURIASIS
  treatment, cardol, India, 1399
TRICUSPID VALVE
  atresia, diagnosis and treatment, [Riker] 1796—ab
  stenosis, diagnosis, [Whitaker] 710—ab
  stenosis and intestinal carcinoid with liver metastases and cyanosis, [Olesen] 222—ab
TRIETHANOLAMINE TRINITRATE BIPHOSPHATE
  coronary vasodilator, [Russek] 820—ab
  treatment of angina pectoris, [Fuller & Kassel] *1708
TRIETHYLENE MELAMINE (TEM)
  toxicity: hematopoietic depression, [Mrazek & Wachowski] *160
  treatment of Hodgkin's disease, [Høst] 1576—ab
  treatment of malignant lymphoid disease, [Hambly] 527—ab
  treatment of ovarian cancer, [Sykes] 818—ab
TRIPELENNAMINE HYDROCHLORIDE
  Cyclaine with, as anesthesia in *peroral endoscopy*, [Adler] *111
TROELL-JUNET SYNDROME
  acromegaly, toxic goiter, diabetes and hyperostosis of cranial vault, Switzerland, 623
TROMEXAN: See Ethyl Biscoumacetate
TRONOTHANE: See Pramoxine
TRUMAN COMMITTEE, A.M.A. resolutions and report on unethical practices, 1549; 1652
TRYPANOSOMIASIS
  American (Chagas' disease), first indigenous case in U. S. [Woody & Woody] *676
TRYPSIN
  crystalline trypsin, N.N.R., 1296
  treatment (aerosol) in bronchiectasis, atelectasis and asthma, [Biron] 515—ab
  treatment of chronic thrombophlebitis, [Wildman] 1681—ab
TRYPTAR: See Trypsin, crystalline
TSUTSUGAMUSHI DISEASE
  chemotherapy, [*Katsura*] *73*—ab
TUBERCLE BACILLUS
  antibiotic-resistant to sensitive, [Allen & Roberg] *1533
  blood medium to cultivate, [*Tarshis*] *1250—ab*
  bronchial vs. to gastric and laryngeal lavage to recover, [Lees] 1682—ab
  drug-resistant, infection with, [Beck] 711—ab
  isoniazid-resistant, significance in pulmonary tuberculosis, [Fox] 527—ab
  on streets from spitting, Turkey, 1051
  streptomycin and isoniazid-resistant strains in untreated tuberculosis, [Chaves] 712—ab
TUBERCULIN
  reaction (intrathecal) in treated tuberculous meningitis, [Rennie] 628—ab
  reactors, 10-year survey in children, [Kassowitz] 1162—ab
  testing in Patna, India, 704
  testing of school children, 28-year study, [Myers & others] *185
  testing plus x-rays in screening, England, 209
TUBERCULOMA
  spontaneous disappearance, [Campbell] 1155—ab
  surgical treatment, lung exeresis, [Bérard] 77—ab
TUBERCULOSIS
  after BCG vaccination, [Gernez-Rieux] 1154—ab
  after cortisone for sarcoidosis, [Lovelock & Stone] (reply) [Israel & others] 69—C
  amyloidosis in, [Wald] 1057—ab
  anemia pathogenesis in, [Miescher] 1408—ab
  bacterial resistance in antimicrobial therapy, [Sweany] 1248—ab
  bovine, fight against, Switzerland, 707
  bronchograms and excision specimens compared, [Simonin] 529—ab
  brucellar pyelonephritis simulating, [Abernathy & others] *1534
  Commonwealth Health and Tuberculosis Con*ference (4th), England, 64*; 209
  control costly in New York City, 1778
  diagnosis and control, tuberculin testing in, [Myers & others] *185
  epidemiological retreat, [Kassowitz] 1162—ab
  hospitalization compulsory for, *England, 1321*
  immunization: BCG, (Switzerland) 510; (Sweden) 1326; (N. Z.) 1565
  immunization: BCG, infant morbidity in Warsaw, [Zapasnik-Kobierska] 524—ab
  in children, meningeal reactions in, [Bour] 1413—ab
  in immigrants, England, 964
  in infant, treatment, 1498
  in man from animals, Switzerland, 1018
  in Peru, 1233
  in servicemen, (England) 1397; (Switzerland) 1477
  in students, England, 965
  in the Hebrides, 965
  in water buffalo in India; milk safe? 536
  infantile, prognosis, [Fornara] 222—ab
  iodized salt aggravate? Counteract goitrogenic PAS? 234
  lesions interpretation after chemotherapy, [Dick] 822—ab

TUBERCULOSIS—Continued
  luposa, isoniazid for, [Bhattacharyya] 1247—ab
  milk-borne, statistics, England, 1143
  mortality, incidence, morbidity, and BCG vaccination, Switzerland, 510
  protecting children of tuberculous parents, [Graffar] 723—ab
  recession of, Sweden, 67
  rehabilitation after, England, 1231
  sanatorium, morbidity in, Italy, 508
  sanatoriums effect on course of, England, 702
  treatment, antibiotics in children, [Bour] 1415—ab
  treatment, cortisone in; renal amyloidosis after, Switzerland, 967
  treatment of rare lesions, streptomycin, [Oppenheim] 1070—ab
  treatment, Peru, 509
  treatment, 7 years of antimicrobial era, [Drolet] 1407—ab
  treatment, streptomycin and isoniazid, M.R.C. report, England, 142
  treatment, thiosemicarbazone plus isoniazid, England, 64
  tuberculous houses are a myth, England, 966
  urine changes after PAS, 1173
TUBERCULOSIS OF LUNG
  after tuberculous pleurisy with effusion, [Myers] 811—ab
  complications: bronchogenic cancer diagnosis in
  [illegible] sone after chem- [illegible], 212
  complications: peritonitis diagnosis in, [Gropp] 1057—ab
  complications: regressive gigantic bullous emphysema, [Alarcón] 400—ab
  death rate declining, N. Z., 1565
  diagnosis, chest x-ray every 3 months safe? 980
  diagnosis, mass radiography, England, 702
  from drug-resistant bacilli, [Beck] 711—ab; (England) 1325
  from isoniazid and streptomycin resistant bacilli, [Murdoch] 1237—ab
  in children, prognosis, [Levin] 1416—ab
  in infants, streptomycin and isoniazid for, [Albós Martínez] 721—ab
  in infants, surgery for, Peru,, 706
  middle lobes in, [Minetto] 812—ab
  new bouts and relapses after resection, [Bérard] 1159—ab
  positive cultures and isoniazid-resistant bacilli, [Fox] 527—ab
  relapse, [Oyama; Mitchell] 1679—ab
  surgical treatment, cavernostomy, [Salzer] 1569—ab
  surgical treatment, extrapleural pneumothorax and thoracoplasty, [Rabino] 627—ab
  surgical treatment: pneumonectomy, lobectomy and segmental resection, [Zerbini] 224—ab
  surgical treatment, pneumothorax status, 1076
  surgical treatment, primary segmental resection vs. resection after pneumothorax, [Marmet] 80—ab
  surgical treatment, resections, (Brazil) 208; [Huang Chia-Ssu] 223—ab; (bilateral), [Kraan] 404—ab; [Cornet] 519—ab; [Cole] 1412—ab
  treatment, chemotherapy; cleansed cavities and bullous neocavities after, [Bernou] 73—ab
  treatment, chemotherapy prolonged, [Dooneief] 1408—ab
  treatment, iproniazid and isoniazid, [Ogilvie] 75—ab
  treatment, isoniazid; peripheral neuritis after, [Hines] *1197
  treatment, isoniazid with streptomycin or PAS; indications for pneumothorax, [Véran] 516—ab
  treatment, PAS with isoniazid, England, 1474
  treatment, pneumoperitoneum, Turkey, 143
  Trudeau Medal, 496
  unrecognized, during cortisone therapy, [Oatway] 516—ab
  untreated active, streptomycin and isoniazid-resistant bacilli in, [Chaves] 712—ab
TUMORS
  clinic, children's, at Yale, 197
  clot formation simulating, in unilateral renal purpura, [Zellermayer] 1164—ab
  desmoid, of popliteal space in pregnancy, [Ober] 1415—ab
  formation in thorax, [Unverricht] 1406—ab
  glomus, [Horton] 1691—ab
  Krukenberg, diagnosis, [Diddle] 1415—ab
  malignant, surgery for recurrences, [Schwalger] 815—ab
  massive abdominal, pheochromocytoma, [Colcock] 1159—ab
  mediastinal, isotope technics for, [Swedenburg] 1065—ab
  mesenteric, isolated lipodystrophy as form of, [Crane] 717—ab
  of bone, vascular pattern in diagnosis, [Begg] 1250—ab
  Polypous: See Polyps
  theca cell, with endometrium cancer, Italy, 1326
TUMORS—Continued
  type and localization of bronchial carcinoma relation to ventilation, [Löhr] 1483—ab
  virilizing, of ovary, [Laffargue] 632—ab
TWINS
  blood groups and other data in, [Walsh] 629—ab
  poliomyelitis, acute anterior, in, [Dadone] 521—ab
TYPHOID
  carriers, diagnosis, treatment, 979
  in abscess in surgical scars, 1314
  paratyphoid and tetanus toxoid in same injection? 94
  thyroiditis complicating, Turkey, 1051
  transverse myelitis after T.A.B. inoculation, [McKelvey] 1490—ab
TYVID: See Isoniazid

U

ULCERS
  anal and tonsillar, during cortisone therapy, 1499
  Curling's, after burns, [Artz & Soroff] *411
ULTRASONICS
  F.C.C. type approval for apparatus, (Council article) *114
  treatment, danger after x-ray and radium? 234
  treatment for asthma? 633; (reply) [Eisenberg] 1804
ULTRAVIOLET RAYS
  for acne, (A.M.A. Committee report) [Malkinson] *1117; (guest editorial by Dr. Rothman) 1124—E
  of blood (Knott technic) for viral hepatitis, [Olney] 1063—ab
  of blood valuable, especially in coronary disease? 410
  photoallergic eczema, Switzerland, 212
UMBILICAL CORD
  conditions as cause of perinatal mortality, [Gold] *244
UMBILICUS
  endometriosis of, [Merchante] 1068—ab
UNANUE, HIPÓLITO (1755-1833)
  National U. of San Marcos celebrate 2nd centenary, Peru, 1146
UNDULANT FEVER: See Brucellosis
UNIFORMS
  impostor salesmen, (Herschel L. Rhodus) 54; (on West Coast) 200
UNITED MINE WORKERS OF AMERICA
  A.M.A. report on medical conference, 940
UNITED STATES
  Bureau of Labor Statistics, economic data on medical care, 1929-1953, (Bureau article) [Dickinson & Raymond] *41; *119
  Congress, how to write to congressmen, 1021—E
  Constitutional amendment on electoral college, A.M.A. resolution on, 1022; 1759
  government medical spending, 1021—E; 1023
  special commission to review social security, A.M.A. resolutions on establishing, 1766
  subsidy for medical education, A.M.A. resolution on, 1766
UNIVERSITY
  college record of freshman medical students, *588
  medical education looks at, [Irons] *537
  of Alabama, physical therapy unit, 1776
  of Chicago courses on health and radiological physics, 384
  of Miami School of Medicine, 1st building, 1130
  of Mississippi Medical Center, dedicated, (photo) 1311
  of Nancy (France) fellowship in pulmonary physiology, [Froeb] 214—C
  of Nebraska psychiatric institute, (photo) 199
  of Oklahoma, (to study stress in relation to fat changes in blood) 1666; (psychiatry expanded) 1667
  of Pennsylvania establishes Frank Wister Thomas Professorship, 53
  of Tennessee, (department of general practice) [Davison] *235; (Medical-Surgical Building; photo) 1386
  of Texas Postgraduate School, Truitt Chair in Cardiology, 1779
  of Vermont, preventive medicine department, 790
  of Wisconsin Medical School addition to be built, 495
URANIUM
  mining hazards in Colorado, [Torrey] 1493—ab
URECHOLINE: See Bethanechol Chloride
UREMIA
  pneumonitis, mechanism responsible? 1700
  sodium, total circulating, in, [Leevy & Donovan] *771
  treatment, hemodialysis in children, [Mateer] 87—ab
URETEROSIGMOIDOSTOMY
  results, [Clarke] 147—ab; [Melick] 726—ab
URETERS
  apparatus for kymographic uterotubal insufflation, [Rubin] *1190
URETHRA
  cancer in female, [Fagan] 525—ab
  diverticula in female, new treatment, [Edwards] 148—ab
  meatus and strictures; hydrocortisone for, [Bonner] 727—ab
URINALS
  rubber, edema of penis from, 1421
URINARY SYSTEM
  calculi, urinary glucuronosides and calcium phosphate, [Prien] 1575—ab
  roentgen study, deaths and sequelae from contrast media, [Pendergrass] 823—ab
URINE
  acidity and nephrocalcinosis, [Reynolds] 1247—ab
  aldosterone excretion high immediately after surgery, [Llaurado] 225—ab
  aldosterone excretion high, with sodium retention; edema from, Switzerland, 212
  changes after PAS in tuberculosis, 1173
  cytology in abortion, [Gagliardi] 85—ab
  glucuronosides and calcium phosphate in urolithiasis, [Prien] 1575—ab
  5-hydroxyindoleacetic acid test for metastatic carcinoid, [Sjoerdsma & others] 397—C
  incontinence, antispasmodics and vitamin E for, [Gianolla] 1246—ab
  incontinence (functional) in menstrual cycle, Austria, 392
  odoriferous, cause, means to eliminate, 1579
  Porphyrin in: See Porphyria
  Pus in: See Pyuria
  quinine in, to determine gastric acidity, [Boersma] 1407—ab
  specific gravity, pitressin test for, Switzerland, 510
  suppression, fatal from phenylbutazone, [Toussaint] 526—ab
  uropepsin in diagnosis of benign and malignant gastric ulcers, [Gray] 1795—ab
UROLOGY
  Residency Review Committee policy, 378—E; (Council article) *383
UTERUS
  basal-cell hyperactivity in cervical biopsies, [Galvin] 1244—ab
  bleeding, carbon monoxide poisoning during pregnancy cause? 1172
  bleeding (occult), benzidine test for, Israel, 704
  cervical smears, [Rogers] 1800—ab
  cervix, colposcopy, [Scheffey] 1245—ab
  dilatation and curettage; care of hydatiform mole after, 736
  electrocoagulation of cervical erosion, Austria, 1473
  Mucosa: See Endometrium
  paracervical denervation for dysmenorrhea, [Doyle] 407—ab
  rupture, in South Africa, [Lavery] 227—ab
  surgery, hysterectomy; fallopian tube prolapse into vaginal vault after, [Funnell] 227—ab
  surgery, hysterectomy; indications, [Hutcherson] 84—ab; 1255
  surgery, hysterectomy plus salpingo-oophorectomy for fibroids with polycythemia, [Engel & Singer] *190
  tumors, fibroids with polycythemia, [Engel & Singer] *190; [Sinclair] 1052—C
UTERUS CANCER
  diagnosis, cervical smears, [Rogers] 1800—ab
  metastases to pelvic lymph nodes, [Lefèvre] 818—ab
  of body, follicular hormone effect on, [Husslein] 1800—ab
  of cervix, Au^{198} for, [Allen] 1244—ab
  of cervix, diagnosis, England, 210
  of cervix from tampons and sanitary napkins? 154
  of cervix, tampons to detect, [Thornton] *1177
  of endometrium, (prognosis and therapy) [Webb] 522—ab; (therapy) [Sadler] 523—ab; (Italy) 1326
  surgical treatment after radium; metastases after, Italy, 1325
UVEITIS
  after removing foreign body from eye, 535
UVEOPAROTID FEVER
  sarcoidosis, [Contreras Vilu] 221—ab

V

VACCINE
  adenoidal-pharyngeal-conjunctival, [Huebner & others] *986
  BCG: See Tuberculosis, immunization
  Salk: See Poliomyelitis vaccine
VACCINIA
  accidental, [Ansell] 1246—ab
  gangrenosa, hyperimmune vaccinal gamma globulin for, [Barbero] 1694—ab
  progressive with agammaglobulinemia and defects in immune mechanism, [Kozinn] 1693—ab

- VAGINA
  - chemical burns from potassium permanganate, [St. Romain] 406—ab
  - cycle; review and normal cytology, [Stougaard-Andresen] 523—ab
  - cytodiagnosis in general practice, [Fusfeld] 1692—ab
  - cytology in abortion, [Gagliardi] 85—ab
  - fallopian tube prolapse into, after hysterectomy, [Funnell] 227—ab
  - smears to detect, cervix cancer, [Thornton] *1177; [Allan] 1800—ab
- VAGOTOMY: See Nerves, vagotomy
- VANCIDE
  - treatment plus benzethonium in seborrheic dermatitis, [Ball] 87—ab
- VARICOSE VEINS
  - palpation to detect valvular incompetence, [Nabatoff] *27
  - surgical treatment determined by valvular insufficiency, Brazil, 1045
  - treatment with sclerosing agents? 1173
- VARIDASE: See Streptokinase-Streptodornase
- VARIOLA: See Smallpox
- VASOPRESSIN INJECTION
  - test of urinary concentration, Switzerland, 510
- VASOXYL: See Methoxamine Hydrochloride
- VEGETABLES
  - leafy, safe for travelers? 1802
  - substances for surgical preparation in toxic goiters, [Sittig] 223—ab
- VEINS
  - hemiazygos, retroperitoneal anastomosis of thoracic duct to, [Brewer] 715—ab
  - hum in cardiac auscultation, [Groom & others] *639
  - innominate occlusion, restore blood flow by arterial graft, [Reveno & others] *1192
  - junction valve incompetence, palpation to detect in varicose veins, [Nabatoff] *27
  - retinal occlusions, etiology and therapy, [Anderson] 229—ab
  - roentgen study, percutaneous splenoportography; spleen hemorrhage after, [Catalano] 624—C
  - splenic stenosis in boy 5, Turkey, 1051
  - stasis, knee flexion in hospital beds cause? 535
- VENA CAVA
  - inferior ligation in congestive heart failure, [Bernath] 80—ab
  - inferior, sudden and gradual complete occlusions, 1256A
- VENEREAL DISEASE
  - blindness due to, decreasing, 958
  - in etiology of vulva cancer, [Collins] 1414—ab
  - penicillin protect against? 829
- VENESECTION
  - repeated, for hemochromatosis, [Davis] 1063—ab
- VENTILATION
  - poor in closed rooms, deodorization in, 1174
- VERATRUM
  - album and viride, alone or with hexamethonium for hypertension, [Brunner] 729—*ab*
- VERRUCA: See also "Warts" under Medicolegal Abstracts at end of letter M
  - treatment, curettage, [Seale] 228—ab
- VERSENATE: See Edathamil
- VERTEBRAE: See Spine; and "Vertebral Dislocation" under Medicolegal Abstracts at end of letter M
- VETERANS
  - disabled, vocational rehabilitation, 1138
  - pensions, England, 143
- VETERANS ADMINISTRATION
  - program on placing the rehabilitated, [Dawson & Anderson] *557
  - program on rehabilitating the aged, 501
- VIADRIL: See 21-Hydroxypregnanedione Sodium Succinate
- VIBESATE
  - N.N.R., 195
- VINEBERG OPERATION
  - for coronary disease, [Bakst] 813—ab; [Beck & Leighninger] *1264
- VIRGINIA
  - program on placing the rehabilitated, [Dawson & Anderson] *557
- VIRUS HEPATITIS: See Hepatitis, Infectious
- VISAMMIN: See Khellin
- VISCERA
  - cancer and thrombophlebitis migrans, [Durham] 1061—ab
  - lesions after phenylbutazone, [McCarthy] 729—ab
- VISION
  - fluorescent flicker effect on, England, 1398
  - loss, percentage of, for compensable injuries, *(reply) [Gabriels] 634*
  - recovery in amblyopia of pituitary apoplexy after surgery, [Shenkin] *1622
- VITAL STATISTICS
  - birth, international trends, 1135
  - birth rate increase raised consumer expenditures, 36—E; (Bureau article) [Dickinson & Raymond] *41; *119
  - birth rate, new high, Ill., 51
  - death causes, changes in, *Denmark, 503*
  - deaths, changing rates, Alaska, 1779
  - deaths, figures in U. S., 1780
  - deaths from cancer in Australia, [Lancaster] 1240—ab
  - deaths from cardiovascular disease decreased in U.S., 1954, 692
  - deaths from diabetes high, Mich., 1384
  - deaths from lung cancer among smokers and nonsmokers, [Stocks] 1679—ab
  - deaths from tuberculosis declining, N.Z., 1565
  - deaths of infants in cesarean section, anesthesia effects on, [Lund] *1586
  - deaths, maternal; Minnesota study, [Council *article*] *1771
  - downward trend of disease, Ill., 1219
  - epidemiologist in reducing illness, England, 804
  - epidemiology of cancer in U.S., [Heller & others] *1628
  - length of life increases, USPHS statistics, 1138
  - morbidity in mouth cancer, diverging sex trends, [Russel] 1696—ab
  - 1956 revisions of birth and death certificates, *[Dunn] *1184; 1215—E*
  - survival from cancer, England, 1564
- VITAMINS
  - newer, symposium at Vanderbilt, 690
  - supplements for athletes? 735
- VITAMINS A
  - treatment of acne, (A.M.A. Committee report) [Malkinson] *1117; (guest editorial by Dr. Rothman) 1124—E
- VITAMINS B COMPLEX
  - B_1: See Thiamine
  - B_2: See Riboflavin
  - B_6: See Pyridoxine
  - B_{12}: See Cyanocobalamin
- VITAMINS C: See Ascorbic Acid
- VITAMINS D
  - calcium lactate with, for parathyroid tetany, 94
  - importance in milk; recommend standards, (Council article) *1018
  - treatment of postoperative tetany, insensitivity to, [Dent] 1483—ab
- VITAMINS E
  - treatment plus antispasmodics in infantile enuresis, [Gianolla] 1246—ab
- VITAMINS K
  - K_1, after coumarin for thromboembolism in surgical gynecology, [Röttger] 523—ab
  - treatment of bronchus and breast cancer, England, 394
  - treatment of hemorrhage from anticoagulants, [Wood & others] *635; (reply) [Howell] 1401—C
  - treatment plus radiation prolongs survival in lung cancer, England, 803
- VITILIGO
  - treatment, Oxsoralen, 1077
- VOCAL CORDS
  - palsies in children, [Cavanagh] 148—ab
- VOICE OF AMERICA, resolutions on A.M.A. representation, 1762
- VOMITING
  - bilious, after gastrectomy, [Capper] 1489—ab
  - cyclic, as form of epilepsy in children, [Millichap] 86—ab
  - in fatal liver cirrhosis in child, (diagnostic problem) [Kidd] *1739; (comment) [Boggs] *1741
  - infantile, treatment, Switzerland, 1147
  - *nitroglycerin contact causes, 1077*
  - postoperative, dimenhydrinate for, [Moore & others] *1342
  - potassium salt of PAS cause, in kidney tuberculosis? 153; (reply) [Molthan & others] 1804
- VULVA
  - cancer, noninvasive, [Collins] 1414—ab

W

- WAGES
  - internship stipends by school affiliation and bed capacity, 1954-1955, *254; *255
- WALKING
  - "pigeon-toed," probably caused by flatfoot, 534
- WAR
  - cars kill more soldiers than, [Wenger] *1347
  - plan for more blood in, [Akeroyd & Crosby] *424
  - psychological reactions in mass casualties, [Caveny] *427
- WARFARIN SODIUM
  - clinical experience, [Pollock] *1094
  - N.N.R., 1297
- WARTS: See Verruca; and Medicolegal Abstracts at end of letter M
  - Venereal: See Condyloma acuminatum
- WATER
  - borne amebiasis in South Bend, Ind., [Sappenfield & others] *1009
  - cold, factors in induring long immersion, England, 1396
  - heating units, magnesium rods harmful? 154
  - nitrogen in, cause cyanosis? 1699
  - removal with Diamox in liver cirrhosis, *[Rissel] 821—ab*
  - safe supply for travelers, 1802
  - *supplies, daily, USPHS, 1784*
  - supply; Cairo, Egypt to fluorinate, 693
  - supply; Coldwater, Kansas to fluorinate, 51
- WATERHOUSE-FRIDERICHSEN SYNDROME
  - complicating purulent meningitis, [Etteldorf] *746
- WEIGHT: See Body weight; Obesity
- WELFARE State: See Socialism
- WELLCOME TRUST, new developments, England, 1564
- WERNICKE'S DISEASE: See Polioencephalitis, superior hemorrhagic
- WETTING AGENTS
  - in antibiotic mists; irritation from, (reply) [Miller] 738
- WHEAT
  - germ oil for indurated corpora cavernosa, 1255
- WHIPLASH INJURIES
  - in automobile accidents, preventing, [Sheldon] *981; [Wenger] *1347
- WHIPPLE'S DISEASE
  - treatment, cortisone; biochemical studies, [Schaffner] 1058—ab
- WHOOPING COUGH
  - immunization, combined, England, 210; (with diphtheria-tetanus) [Barr] 1163—ab
  - immunization, diphtheria combined vs. separate, [Spiller] 1163—ab
  - immunization, electroencephalogram after, [Low] 723—ab
  - immunization, England, 1398
  - mortality, vaccination hazards, treatment, *Switzerland, 967*
- WITNESS
  - expert medical, symposia discuss, 1638
- WOLFF-PARKINSON-WHITE SYNDROME
  - homologous serum hepatitis with, Austria, 503
- WOMAN'S AUXILIARY
  - progress report, 1645
  - support of A.M.E.F., A.M.A. resolution on, *1022; 1758*
  - Tennessee, school health responsibility contest, [Public Relations] *1381
- WOMEN
  - in medicine in U. S., 1905-1955, *587
  - in N.H.S. to be paid same rate as men, England, 1565
  - medical students, enrollment, *583
- WORDS AND PHRASES: See Terminology; Medicolegal Abstracts at end of letter M
- WORKMEN'S COMPENSATION: See also Industrial Accidents; Medicolegal Abstracts at end of letter M
  - A.M.A. reports, 906; 1648; 1653; 1662
  - A.M.A. Trustees report on Commission on Medical Service Plans, 1369; 1370
  - disability rating, physician in, [Nicholson] *642
  - effort relation to myocardial infarction for, 737; (reply) [Parisi] 1804
  - patient and physician, [Nicholson] *642
  - visual loss for compensable eye injuries, (reply) [Gabriels] 634
- WORLD CONGRESS OF ANESTHESIOLOGISTS, 1144
- WORLD HEALTH ORGANIZATION
  - action against trachoma, 1049
  - chemicals in foods study, Switzerland, 1566
  - *consultants advise on cancer program, 1047*
  - fellowships, 1048
  - Regional Committee for Europe plans, 1147
  - Regional Poliomyelitis Laboratory at Hadassah Medical School, 395
  - report on poliomyelitis season, 1050
  - Russia returns, 68
  - Southeast Asia Director's report, India, 1791
  - warn of meperidine addiction, 1233
- WORLD MEDICAL ASSOCIATION
  - A.M.A. report, 946; 1653
  - study of social security, 1020—E; [Knutson] *1054
  - Vienna meeting report, 1020—E; (abstracts of proceedings) 1745
- WORLD WAR II (1939-1945)
  - leukemia in atomic bomb survivors, [Moloney] 813—ab
  - pensions, England, 143
  - social security changes after *occupation of* Austria, 800

WOUNDS
  debridement and closure in open fractures, _[Hampton]_ *417
  gunshot, of aorta stop a man at once? (reply) [Smith] 1500
  shotgun: close-range and long-range, England, 702
  streptococcal enzymes to close contaminated _incisions, [Smith] 718—ab_
WRIGHT-PATTERSON Air Force Base, glaucoma project, [Havener & others] 213—C
WRIST
  painful non-arthritic disturbances, [Toone] 1484—ab
WRITING
  physicians as writers, [Leisure Corner] *1053
  would-be-physicians' English, 1397
WYDASE: See Hyaluronidase

X

XANTHATE: See Medicolegal Abstracts at end of letter M
XANTHOMA
  Sheehan's syndrome with, [Zöllner] 819—ab
XERODERMA
  pigmentosa with progressive telangiectasia and skin atrophy, 536
XYLOCAINE: See Lidocaine

Y

YALE UNIVERSITY
  children's tumor clinic established, 197
  Harkness Residential Hall, (photo) 1463
YAWS
  eradication in Haiti, 810
YEAST
  active, eating cause thiamine deficiency? 633; (reply: lowers blood sugar with no deficiency) [McClendon] 1801
  bacterial antagonism, [Bizot] 1493—ab
  dermatoses during antibiotics, avitaminosis with, [deGraciansky] 408—ab
  treatment of leukemias, [Protti] 1109—ab
YOGURT
  treatment plus prune whip in constipation, [Ferrer] 1210—ab

Z

ZENKER diverticulum, severe pulmonary disease after, [Hawes] 973—ab
ZINC
  stearate inhalation hazard in _rubber industry_, 233

AUTHOR INDEX

The asterisk (*) indicates an original article in THE JOURNAL.
For subject index see page 3.

A

Aaron, H. H., *848
Abbatt, J. D., 823
Abbott, W. E., 1572
Abelson, N. M., *238
Abernathy, R. S., *1534
Abramson, H., 1330
Achor, R. W. P., *841
Ackerman, L. V., 1409
Acquati, A., 88
Actis-Dato, A., 1571
Adam, A., 1417
Adams, H. D., *1195
Adams, J. Q., *105
Adams, P. A., *1342
Adler, H. J., *111
Adlersberg, D., 1152, *1731
Adriani, J., 972
Akeroyd, J. H., *424
Alarcón, D. G., 400
Albeaux-Fernet, M., 1695, 1695
Albós Martínez, J., 724
Alivisatos, J. G., *1098, (correction) 1467
d'Allaines, F., 1689
Allan, M. S., 1800
Allen, A. R., *1533
Allen, W. A., 1244
Alvarez, L. M., 1568
Alznauer, R. L., 150
Amerio, A., 1567
Andersen, A. H., 1680
Andersen, H., 1070
Anderson, B., 229
Anderson, O. L., *1522
Anderson, R. E., *9
Anderson, R. N., *557
Andrew, J. M., 213
Ansell, H. B., 1246
Appel, K. E., *1278
Apt, L., 723
Archer, J. D., *99
Arena, J. M., *1537
Arendt, E. C., 1059
Armas Cruz, R., 820
Armstrong, C. *D., 1480*
Armstrong, R. S., 1167
Arney, G. K., *1727
Aronow, J., *1288
Arruda, E., 1248
Artz, C. P., *411, 1798
Ascher, K. W., 808
Askey, E. V., *1551, *1642
Atkinson, M., 1411
Austin, G. M., 225
Avol, M., *1516
Axelrod, H., 404
Azima, H., 1490

B

Bär, C. G., 819
Bajusz, E., 808
Baker, C., 1685
Bakir, F., 1678
Bakst, A. A., 518, 813
Ball, F. I., 87
Balmes, A., 1488
Bannister, W. K., *1337
Banyai, A. L., *1272
Barber, M., 1418
Barbero, G. J., 1694
Bargen, J. A., 971
Barnett, H. E., *1451
Baronofsky, I. D., 517
Barowsky, H., 526
Barr, D. P., *1452
Barr, M., 1163
Barry, A. P., 817
Barsa, J. A., 405
Bartemeier, L. H., 1644
Bartfeld, H., *1510
Bates, T., 974
Batterman, R. C., *1619
Bauer, R. O., 808
Baylin, G. J., *668
Beach, M. W., 1069
Becattini, U., 1414
*Beck, C. S., *1264*
Beck, F., 711
Beckwith, J. R., *635
Beecher, H. K., *1602
Begg, A. C., 1250
Belcher, J. R., 1686
Bell, J. A., *986
Benson, W. W., *241
Benstz, W., 1239
Bérard, M., 77, 627, 1159
Berens, C., *1532
Berg, J. W., 715
Berger, A. J., *191
Bergquist, J. R., 1490
Berk, J. E., *1079
Berlin, H. S., 1411
Berman, E., *95
Bernath, J., 80
Bernhard, W. F., 717
Bernou, A., 75
Bertram, F., 1328
Best, F., 1161
Betcher, A. M., *766
Beutler, E., *989
Bhattacharyya, M., 1247
Bickel, G., 1249
Bickerman, H. A., 1166
Bignall, J. R., 1330
Birke, G., 525
Biron, A., 515
Bishop, J. S., *1730
Bittner, J. B., 1493
Bixby, E. W., Jr., 1480
Bizot, M., 1493
Blackburn, E. K., 1071
Blades, B., *419
Blasingame, F. J. L., *1235
Blau, L., *554
Blegen, E. M., 1485
Bliss, E. L., 1160
Blixenkrone-Møller, N., 82
Blocker, T. G., Jr., *422
Blowers, R., 528
Blumenauer, G. III, 1480
Bockus, H. L., 1061
Bodian, D., *1444
Boersma, J. W., 1407
Boesen, I., 524
Boggs, J. D., *1741
Boland, W., 1485
*Bollet, A. J., *1501*
Bolt, N. A., 402
Bolt, R. J., 1493
Bond, V. P., *430
Bonfigli, E. R., 812
Bonica, J. J., *551
Bonner, C. D., 727
Bookman, R., *1275
Boone, J. A., *639
Boros, E., 714
Boscaro, M., 722
Bosworth, D. M., 815
Botterell, E. H., 227
Bottone, E., 1574
Bour, H., 1413, 1415
Bourne, R. G., 730
Bousser, J., 1494
Boyd, D. P., *112
Boyd, J. T., 630
Boyer, W. P., 1166
Braceland, F. J., *1187
Brændstrup, P., 1165
Braunstein, P. W., *1353
Brawner, D. L., 1245
Brem, T. H., 1157
Breneman, G. M., 72
Brenner, J. H., 1152
Brewer, L. A., III., 715
Brick, I. B., 1688
Bridenbaugh, L. D., *1342
Briggs, G. W., 1331
Briggs, J. N., 1487
Brock, J. F., 1059
Brockmann, J. L., *1529
Brodie, J., 813
Brooke, M. M., *1009
Brown, E. C., *1513
Brown, H. W., 1575
Brown, J. B., 1413
Brown, J. W., 710
Brown, W. M. C., 529
Browne, D. C., 225
Browning, L. E., *430
Bruetsch, W. L., 231
Bruins, C., 723
Brunner, D., 729
Bunim, J. J., *1501
Burgess, A. M., 1567
Burnett, C. F., Jr., 1156
Burns, W. T., *5
Buttafarri, G., 1687
Byrne, J. J., 1408

C

Cahan, A., *247
Cahn, M. M., *1736
Caldwell, W. G., 818
Caluzzi, F., 1158
Camp, J. L., III., *635
Campbell, A. H., 1153
Campbell, M. M., 398
Capper, W. M., 1489
Capra Marzani, P., 1237
Carithers, H. A., *109
Carlsen, K. D., 223
Carnes, W. H., 708
Carson, M. J., 976
Carter, D. D., *668
Carter, F. R. N., *1009
Cartier, G.-E., 814
Casselman, W. G. B., 1678
Castro, C. M., 1681
Catalano, D., 624
Catlow, C. E., 147
Cavanagh, F., 148
Caveny, E. L., *427
Cecchi, E., 1418
Cerviá, T., 1153
Chalmers, T. C., *1431
Chapadeiro, E., 974
Chapman, E. M., 1237
Chapman, J. S., 214
Chaptal, J., 730, 976
Charatan, F. B. E., 144
Chaves, A. D., 712
Chérigié, M., 629
Chevalley, M., 1797
Chiarioni, T., 1484
Childers, J. H., 1696
Childs, D. S., Jr., *541
Christenberry, C. W., 70
Christiansen, E., 1417
Cigarroa, J. G., *1431
Ciliberti, B. J., *766
Cimmino, C. V., 731
Clark, D. E., *995, *1007
Clark, E. C., *1721
Clark, H. G., 1795
Clark, R. M., 1496
Clarke, B. G., 147
Clarke, J. S., 718
Clement, D. H., 1069
Clément, R., 146, 1067
Clements, F. W., 1484
Cloward, R. B., 974
Coffey, F. L., 79
Cohen, A., *1724
Cohen, H., 1238
Cohen, I. M., *99
Cohn, S. H., *430
Colcock, B. P., 717, 1159
Cole, F. H., 1412
Cole, W. H., 520
Coleman, M., 1148
Coliez, R., 1250
Collins, C. G., 1414
Colombati, S., 720
Combes, F. C., 807
Conard, R. A., *430
Conti, A., 88
Contrerars Vilu, V., 221
Contro, S., 1241
Cooksey, N. J., 1052
Cooling, C. I., 1492
Cope, C. L., 1061
Cope, O., 716
Coppo, M., 222
Corelli, F., 230
Coriell, L. L., *238
Cornet, E., 519
Cortese, L., 1061
Coste, F., 729
Cottet, J., 514
Cotton, B. H., 403
Courville, C. B., 1246
Covey, G. W., 72
Cowdell, R. H., 1058
Craddock, W. L., *1437
Crane, J. T., 717
Crawford, E. S., 1691
Creech, O., Jr., 973
Creed, D. L., 1495
Creyx, M., 76
Cronk, P. G., 1484
Cronkite, E. P., *430
Crosby, W. H., *424
Crowson, C. N., 631
Cruz, Hernández, H., 1248
Culbertson, C., *1009
Cummin, R. C., 721
Cutler, S. J., *1628
Czoniczer, G., 1486

D

Dabbs, C. H., *1626
Dadone, G., 521
Dagradi, A., *22
Dagulf, H., 1066
Dale, P. W., 975
Danowski, T. S., 1568
Dao, T. L-Y., 1690
Darsie, M. L., **1114*
Dascomb, H. E., 713
Davidoff, L. M., 628
Davidson, C. S., *1257, *1431
Davies, B. M., 813
Davis, G. D., *1738
Davis, P., 971
Davis, W. D., Jr., 1063
Davison, R. A., *235
Dawson, A. R., *557
Day, R. L., *1340
de Alvarez, R. R., 522
Dean, G., 712
Dean, G. W., 517
Deane, N., *1431
DeBakey, M. E., 1572
Decker, K., 83
Decourt, J., 404
Deddish, M. R., 1691
Delhné, E. J., 1569
DeLee, S. T., *750
Dembińska-Widy, L., 1163
De Natale, A., *247
Denhoff, E., 719
Dennis, C., 1688
Dennis, E., 1406
Denstad, T., 1697
Dent, C. E., 1483
Dern, R. J., *989
Desgrez, H., 529
deSilva, C. C., 1331
Dessen, E. L., *1441
Díaz Tellechea, C. M., *645
Dick, J. C., 822
Dickinson, F. G., *41, *119
Diddle, A. W., 1415
Dienemann, G., 718
Dillon, J. B., *1114
di Sant'Agnese, P. A., 86
Dittrich, R. J., 1410, 1794
Dodge, H. W., Jr., *774, *1721
Dodrill, F. D., *1192
Dogliotti, A. M., 1689
Doig, A. T., 1168
Donohue, W. L., 1330
Donovan, F. J., *771
Dooneief, A. S., 1408
Doyle, J. B., 407
Dragstedt, L. R., follows 1700
Dragunova, N. S., 524
Drolet, G. J., 1407
Ducco, F., 1332
Dunavant, W. D., *1202
Dunham, C. L., *430
Dunn, H. L., *1184
Durham, R. H., 1061
Duthie, J. J. R., 221
Dyk, A., 74

E

Eckhardt, R. D., *1431
Eckmann, L., 814
Edwards, E. A., 148
Effler, D. B., 1571
Ehrenhaft, J. L., 1158
Elber, H. B., 406
Eisen, B., *191
Eldridge, F. L., 732
Eller, J. J., 726
Ellis, L. B., 402, 715
Elman, R., *33
Engel, G. L., 1058
Engel, H. W., *190
Enklaar, J. E., 725
Epstein, J. A., *1447
Ermala, P., 732
Essellier, A. F., 1071
Estupiñán, A., 214
Etsten, B., *845
Etteldorf, J. N., *746
Evans, C. A., *743
Evans, J. A., *1353

F

Fagan, G. E., 525
Fair, E., 1063
Fairburn, B., 1063
Falk, W., 149
Fallis, L. S., 719
Fantuzzi, B., 86
Faria, V., 527
Farr, R. S., *430
Fazio, M., 626
Feldaker, M., 228
Fell, E. H., 1570
Fellner, C. H., 1799
Ferrara, R. J., 228
Ferrari, V., 408, 1160
Ferrarini, G., 1154
Ferraris, F., 722
Ferrer, F. P., 1240
Fertitta, S., 1796
Fertman, M. B., 151
Fleschl, A., 401
Fiese, M. J., 822
Firpo, J. R., 818
Fletcher, G. H., 151
Fletcher, M. C., 1694
Flocks, R. H., 1575
Florey, H. W., 1249
Fornara, P., 222
Foster, M. W., *1520
Foulk, W. T., 1152
Fox, E. C., *544
Fox, W., 527
Franceschini, G., 1795
Francis, T., Jr., 1157, *1444
Franke, H., 1328
Frankel, D. B., 1408
Frankel, K., 405
Frankel, L. A., 1052
Frankel, W. K., 398
Freitheim, B., 519, 519
Fremming, K. H., 144
Frischknecht, W., 1574
Froeb, H. F., 214
Frye, C. W., *1181
Frye, W. W., *1009
Fuldner, R. V., 1246
*Fuller, H. L., *1708*
Fulton, H., *998, *1358
Funnell, J. W., 227
Fusfeld, C. L., 1692
Fyles, T. W., 399

G

Gagliardi, F., 85
Gaines, L. M., Jr., V. 158: *1021, (correction) V. 159: 132
Gairdner, D., 407
Galante, M., 716
Galdston, I., 1676
Gallagher, H. W., 520
Galvin, G. A., 1244
Gambino, S. R., *671
Gambusi, G., 231
Gans, B., 1068
García López, G., *645
Gardner, F. G., 712
Garland, H., 1795
Gatzimos, C. D., 1167
Gayle, R. F., Jr., *1520
de Gennes, L., 1418, 1485
Génot, R., 525
Gernez-Rieux, C., 1154
Gertner, J. J., 1401
Gianolla, S., 1246
Gibbons, J. E., *836
Gibbs, J. O., *1085
Gibson, S., *95
Gibson, W., *1428
Gifford, J. H., 1489
Gifford, R. W., Jr., *841
Gilbert, M., *775
Gilbert-Dreyfus, 1061
Gill, G. G., 82
Gilman, J. P. W., 1168
Gilsanz, V., 715
Ginsberg, R. L., 80
Giordana, A., 969
Girdwood, W., 81
Glover, R. P., 1487
Götzen, F. J., 1331
Goffrini, P., 78
Gold, E. M., *244
Gold, H., 1062
Goldberg, R. F., *1598
Goldman, R., 1419
Goldstein, L. J., 1417
González Salvatierra, A., 7
Good, R. A., 725
Good, T. A., 1161
Goodman, J. I., *831
Goodwin, J. F., 1064
Gordon, A. S., *1181
Gordon, H. S., *1288
Gordon, R., *511, *1150, *1402, 1677
Gorelik, A. N., 708
Gormsen, H., 1485
Gozzano, M., 1244
Graber, I. G., 1242
Grabstald, H., 1164
de Graciansky, P., *76, 408*
Graeber, F. O., *241
Graffar, M., 723
Gray, S. J., 1795
*Green, J. C., *1342*
Greenberg, B. G., 1330
Greenberg, M., 146, 146
Greene, A., *238
Greenhill, J. P., 398
Grinberg, R., 1495
Groom, D., *639
Gropp, W., 1057
Gross, R. T., 708
Grossi, L., 518
Grossman, A. J., *1619
Gunlaugson, F. G., *185

H

Haenszel, W. M., *1628
Hall, R., 230
Hall, [illegible] E., 18[illegible]
Hall, W. R., [illegible]62
Hallenbeck, *G. A.*, *1571*
Hambly, C. K., 627
Hampton, O. P., Jr., *417
Hamwi, G. J., *1598
Hanna, M., 976
Hanson, N. O., *841
Harrell, D. D., 69
Hartley, J. W., *986
Harvey, J. C., 1419
Haunz, E. A., *1611
Haut, A., 1249 1409
Havener, W. H., 213
Hawes, L. E., 973
Head, R. G., 817
Headstream, J. W., 726
Healey, R. J., 971
Heaney, J. P., 626
Heggø, O., 517
Heichmann, J., 220
Hellmeyer, L., 713
Heller, J. R., *1628
Holm[illegible]n, E., *25
Helps, E. P. W., 970
Henson, G. F., 1065
Herrick, J. F., *1286
Hess, E., *380, *853, *1304, *1545, *1550, *1646, *1744
Heuchel, G., 1157
Heymann, W., 629
Hilden, T., 74, 83
Hill, J. M., 1678
Himes, H., *1731
Himwich, H. E., 1799
Hines, R. A., *1197
Hinglais, H., 231
Hinman, F., 147
Hitchcock, C. R., 1798
Hodges, C. V., *1198
Hodges, R. E., 85
Hoerr, S. O., 224
Høst, H., 1576
Hoffer, A., 1496
Hollinger, P. H., *1338
Holkup, H., 1068
Hollingsworth, J. W., 231
Holman, C. B., *774
Holt, R. L., 81
Holzhausen, H., 1798
Hood, R. T., Jr., 518
Hoover, H., *214
Horstmann, D. M., 1244
Horton, C., 1691
Houli, J., *561
Howell, M. J., 1401
Hsia, D. Y-Y., 1162
Huang Chia-Ssu, 223
Hubbard, J. P., 1157
Hubble, D., 1152
Hubbs, R. S., *673
Huebner, R. J., *986
Hughes, C. W., 1488
Hunt, C. J., 79
Hunter, A. R., 814
Huntington, I., 1159
Hussey, H., 1057
Husslein, H., 1800
Hutcherson, W. P., 84
Hyman, M. A., 1480

I

Irons, E. E., *537
Israel, H. L., 69
Iversen, T., 820

J

Jack, J. A., *247
Jackson, D. P., *171
Jackson, I. J., 405
Jackson, W. P. U., 1329
Jaffe, H. L., *434
Jahrmärker, H., 1494
Jamison, W. L., 1166
Jans, P. C., 85
Jemma, A., 524
Jenkins, M., *639
Jiménez Díaz, C., 1165
Johnson, D. A., *1507
Johnson, J. E., Jr., 626
Johnson, W. D., 1576
Johnston, D. H., *668
Jorgensen, M. B., 1066
Joselevich, M., 970
Joseph, M., 70
Joske, R. A., 401
Judovich, B. D., *549
Julian, O. C., 1797

K

Kafka, V., 145
Kark, R. M., 1568
Kass, I., *1513
Kassel, L. E., *1708
Kassowitz, K. E., 1162
Katsura, S., 73
Kay, E. B., 1486
Kay, S., *1734
Keeney, A. H., *1113
Kendig, E. L., Jr., 1693
Kesztele, V., 515
Keynes, G., 77
Kidd, J. M., *1730
Kinard, C. L., 1479
King, A. B., 1699
Kinmonth, J. B., 77
Kirby, W. M. M., *743
Kirkham, L. J., 1485
Kirklin, J. W., *1738, 1796
Kirsh, I. E., 1072
Kirsner, J. B., 724
Kissin, M., *29
Kite, J. H., 1685
Kivikanervo, K., 403
Kjærgaard, H., 1567
Klayman, M. I., 400
Kleinfeld, M., *677
Klima, H., 821
Klinger, R., 401
Knight, V. H., Jr., 1486
Knutson, D., *1054
Koch, C. F., 632
Kogan, B. B., 1568
Kohl, G. C., 728
Kohout, F. W., 1059
Koller, F., 821
Kory, R. C., 728
Kosowicz, J., 1161
Kozinn, P. J., 1693
Kraan, J. K., 401
Krakoff, I. H., 526
Kram, D. D., *739
Kratka, W. H., 1165
Krause, S., 399
Krevans, J. R., *171
Kreyberg, L., 75
Kriss, J. P., 708, 1419
Krogh, I., 1570
Kruisinga, R. J. H., 714
Krusen, E. M., *1282
Kunstadter, R. H., 1491
Kupperman, H. S., *1447
Kutschera-Aichbergen, H., 1060

L

Laffargue, P., 632
Lambert, J., 220
Lamble, A. T., 150
Lancaster, H. O., 1240
Landesman, R., 1415
Lange, P., 1068
Lanzoni, V., 631
Larsen, B. B., *21
Larson, C., *1444
Lattimer, J. K., 1247
Laurent, L. P. E., 1165
Laursen, H., 1246
Lavery, D. W. P., 227
Lawson, M. G., 1645
Lazarte, J. A., *774
Le Bourdellès, B., 1486
Lee, C. M., 1571
Leech, T. R., 1065
Leeds, W. G., *1529
Lees, A. W., 1682
Leevy, C. M., *771
Lefèvre, H., 818
Lehman, R. G., 969
Leibowitz, J. O., 397
Leighninger, D. S., *1264, 1686
Lelli, G., 231
Lemaire, A., 719
Lemmon, G. B., Jr., 1148
Lendrum, F. C., 976
Lennartz, L., 975
Leszler, A., 1250
Levack, J. H., 1492
Levin, N., 1416
Levine, B., *1704
Levinson, S. A., *1718
Lew, E. A., 625
Lewis, I. C., 408
Li, M. C., 1409, *1701
Libov, S. L., 1162
Liddell, D. W., 226
Light, S., *31
Lilienfeld, A. M., *155
Lillehei, C. W., 1241, 1329
Lillehei, R. C., *163
Lindskog, G. E., 1241
Lindstrom, C. A., *1342
Linenthal, A. J., *1428
Linton, R. R., 78, 1573, 1797
Lipsett, M. B., *1701
Little, D. M., *1337
Llamas, R., 1407
Llaurado, J. G., 225
Lloyd-Jones, J., *1730
Lodi, P. A., 1798
Löhr, B., 1483
Lønnum, A., 1167
Logaldo, E., 1684
Lohman, E. W., 73
Lomas, J., 83
Longcope, C., *1730
López Toca, R., *645
Lougheed, W. M., 406
Lovelock, F. J., 69
Low, N. L., 723
Lowell, F. C., 1070
Luft, R., 1243
Luhan, J. A., *1112
Lull, G. F., 1647
Lund, F., 1217
Lund, P. C., *1586
Lund, R. H., 1410
Lundy, J. S., 1496
Lusiani, G. B., 514
Lyager, T., 1213
Lynch, R. C., 713
Lytton, L., *1289

M

McAllister, R. M., *238
Macbeth, R., 1572
McBurney, R. P., 971
McCarthy, J. M., 729
Maclean, J. P., *1701
McClenahan, J. L., *1353
McClintock, J. C., 80
McClure, J. H., 721
McCorkle, L. P., 146
McCormick, E. J., 70
McCorry, R. L., 149
McCue, C. M., 1416
McCullagh, E. P., *1098, (correction) 1467
McDowell, A. V., *1529
McHardy, G., 1153
MacIntosh, J. W., Jr., 230
*MacKay, H. J., *1261*
McKelvey, T. P. H., 1490
MacLeod, J., 81
Macnab, I., 1239
McVay, L. V., 220
Maffei, R., 731
Magnani, B., 727
Makin, M., 729
Malkinson, F. D., *1117
Malone, R. G. S., 1682
Mancuso, M., 1158
Mandel, W., V. 158: *1021, (correction) V. 159: 132
Mandl, W., 81
Marberg, K., 402
Marillery, R. J., Jr., V. 158: *1021, (correction) V. 159: 132
Marini, C., 522
Markowitz, M., *663, 1069
Marks, G., 215
Marmet, A., 80
Marrangoni, A. G., 1062
Mars, G., 816
Marshall, F. A., 1161
Marson, F. G. W., 1058
Martin, Glenn M., 1069
Martin, Gordon M., *1286
Masland, R. L., 807
Mason, A. S., 1413
Massone, G., 1249
Massumi, R. A., *177
Mastromatteo, E., 1168
Masur, W. W., *739
Mateer, F. M., 87
Mathewson, C., Jr., 716
Mathieu, L., 820
de Matteis, F., 822
Matthews, M. B., 1328
Mattingly, T. W., *1727
Matturro, F., 1567
Mauer, E. F., 1248
Maurice, P., 514
Mauthe, H., 731
Mavor, G. E., 1687
Mecklin, B., 1676
Melick, W. F., 726
Melina, D., 1488
de Mello, R. P., 517
Melot, G. J., 226
Meneghel, G., 1066
Menger, H. C., *546
Merchante, F. R., 1068
Meyerding, E. A., *185
Meyers, J. B., 150
Miall, W. E., 230
Michel, F., 817
Middleton, J. E., 522
Miescher, P., 1408
Migliavacca, A., 84
Mikuni, M., 229
Miller, A. J., *1364
Miller, H. S., 1478
Miller, R. A., *95
Miller, R. H., 975
Millichap, J. G., 86
Miner, P. F., 1067
Minetto, E., 812
Mitchell, R. S., 1679
Mix, G. H., *551
Modlin, J. J., 520
Mody, M. V., *1113
Moeschlin, S., 408
Mollison, P. L., 528
Moloney, W. C., 813
Moore, D. C., *1342
Moore, K. L., 732
Moore, O., 720
Moritz, A. R., 1327
Morris, K. N., 1412
Morrison, B., 1693
Morrison, L. F., 1696
Morrison, L. M., *1425
Movitt, E. R., 76
Moyer, J. H., 220, 631, 1406, 1406
Moynihan, N. H., 972
*Mrazek, R. G., Jr., *160*
Muehrcke, R. C., 1247
Müller, R., 628
Muir, A., 714
Muldoon, J. P., 1797
Muller, J. C., *836
Murdoch, J. McC., 1237
Murphy, J. C., 87
Murphy, T. O., 1689
Murray, D. H., *1517
Murray, N. A., 1151
Murtagh, F., 822
Mutschler, P., 1569
Myers, J. A., *185, 811

N

Naalsund, O., 727
Nabatoff, R. A., *27
Nakamura, S., 1070
Necheles, H., *1013
Nelson, O. A., 525
Nelson, T. L., 1570
Nevlaser, J. S., *1595
Newborg, B., 516
Newburger, R. A., *1, 823
Nicholson, J. T., *612
Niedner, F. F., 1061
Nissel, W., 1682
Nocetti, D., 728
Norheim, F., 727
Norman, L. R., *1128
Novacs, A. S., 1680
Nori, I., 627
Nulsen, F. E., *559
Nutt, A. B., 151

O

Oatway, W. H., Jr., 516
Ober, W. B., 1115
Oberhelman, H. A., Jr., 716
O'Brien, G. R., 1689
Öhlinger, L., 632
Ogilvie, C. M., 75
Olesen, K. H., 222
Oljelund, O., 632
Olney, R. C., 1063
Olnick, H. M., *1525
Olson, W. H., *1013
Omland, G., 1155
Oppenheim, H., 1070
Opton, E. M., 1411
Orgain, E. S., *836
Ortiz-Ramirez, T., 1060
Ostfeld, A. M., 970
Oswald, N. C., 1791
Otaiza, M. E., 1411
Ottolenghi, C. E., 82
Overstreet, J. W., 814
Oyama, T., 1679
Ozar, M. B., 726

P

Pack, G. T., 520
Packard, G. B., 974
Paffenbarger, R. S., Jr., *986
Page, E., 973
Palmer, E. D., 1238
Panaccio, V., 87
Pangman, W. J., II, 818
Parrott, T., Jr., 1685
Pasamanick, B., *155
Paul, M. H., *1428
Payne, F. M., *1009
Pearson, O. H., *1701
Pedersen, E., 628
Peel, A. A. F., 710
Peirce, E. C., II, *1626
Pena, E. F., 1692
Pender, J. W., *1738
Pendergrass, E. P., 823
Penfield, W., 1414
Perera, G. A., *439
Perlman, A., *663
Perlstein, M. A., 145; follows 738
Perry, C. S., 213
Perry, H. M., Jr., 76, *839
Perry, K. M. A., 1332
Persky, A. H., 1417
Persson, I., 74
Pestalozzi, C., 229
Pestel, M., 1418
Peters, J., 398
Petersen, M. C., *774
Peterson, L. J., *241
Petrina, N., 1798
Pfahler, G. E., 1694
Pfeffer, K. G., 401
Phair, J. J., *1105
Piccioni, V. F., *1342
Pico, G., 630
Plaut, H. F., 976
Plaza de los Reyes, M., 221
Plimpton, C. H., *671
Plotkin, Z., 1678
Plou
Pobin ,
Polhemus,
Pollock, B.
Pontius, G.
Poppel, M. L.,
Porterfield, C., 2
Post, L. L., 1692
Poth, E. J., 1573
Potter, E. L., *131
Potter, G. J., 808
Potts, W. J., *95
Pounders, C. M., 975
Povoa, H., Filho, *56
Powell, W. N., *1361
Pratt, G. H., 1061
Preston, D. J., *17
Pribilla, W., 821
Price, P. B., *1315
Price, W. E., *1531
Prien, E. L., 1575
Prinzmetal, M., *177
Proger, S., *815
Protti, G., 1109
Provenzale, L., 78
Prusmack, J. J., *673
Pryor, W. W., *836
Puckett, T. F., 103

Q

Quinn, J. A., 1696

R

Rabino, A., 627
Rabson, A. S., 1684
Race, R. R., *217
Raim, J., *1289
Raim, N. C. E., *1289
Ransdell, H. T., Jr., 1687
Ranson, W. A., *1085
Rast, C. L., 1156
Rattner, H., *1299
Ravdin, I. S., *1109
Raymond, J., *41, *119
Reboredo, A., *615
Redman, J. L., 398
Redon, H., 1241
Rees, R. B., 725
Reid, D. D., 1692
Reifenstein, R. W., *1431
Rein, C. R., *1299
Reinberger, J. R., 85
Reinstein, C. R., 722
Reisch, M., 807
Reisner, E. H., Jr., 1238
Renes, G. J., 1490
Rennie, H. M., 628
Rentchnick, P., 74
*Reveno, W. S., *1192*
Reynolds, L., *1192, *1358
Reynolds, T. B., 1247
Reynolds, W. E., *1431
Rhodes, P. H., 1068
Rice, C. O., 1495, 1495
Riches, E. W., 88
Richman, A., 1407
Rickard, H. J., *754 (correction) 1557
Ricklin, P., 973
Rider, J. A., *1085
Rigler, S. P., 719
Rignall, J. R., 812
Riker, W. L., 1796
Rinehart, R. E., 711, 728
Ringertz, N., 515
Riser, M., 151
Rissel, E., 821
Roantree, R. J., 1684
Roberg, E. A., *1533
Roberts, J., *185
Roberts, K. E., 1483
Roberts, M. H., *1002
Robinson, J. R., 1410
Rodriguez, H. F., 1153
Rodríguez-Pérez, D., 1411
Rønnov-Jessen, V., 73, 74
Rogers, J. V., Jr., *1525
Rogers, W. S., 1800
Romano, N., 1799
Romualdi, G., 83
Rosa, L., 72
Rose, I., *1724
Rose, L. B., *1015
Rosenauer, F., 404
Rosenfeld, M. H., *434
Roskam, J., 1059
Rosolleck, H., 1489
Ross, B. D., 624
Ross, L. S., 70
Rossi-Espagnet, A., 972
Rothman, S., *1124
Rowe, A. H., 1240
Rowe, R. D., 407
Rowe, W. P., *986
Rowntree, L. G., 214, *1527
Rubin, E. H., 1680
Rubin, I. C., *1190
Ruckensteiner, E., 1160
Ruffin, J. M., *668
Ruggieri, P. A., 1569
de Ruiter, H. J., 1159

, 820
6
68
.. S., 730

S

B., 521
. M., 523
, E. G., 724
nain, M. J., Jr., 406
J. E., *1444
Aaron, H. Jonson, B. J., 821
Abbatt, J. .tierra, A. G., 75
Abbott, W.er. G., 1569
Abels Sanders, D. M., *22
Ab Sandweiss, D. J., *998
Sanger, R., *247
Santopadre, G., 1331
Santyan y Velasco, S., 1416
Sapoznik, H., 149
Sapp, O. L., *1727
Sappenfield, R. S., *1435
Sappenfield, R. W., 727, *1009
Sartori, C., 1167
Saslaw, M. S., *653
Savosnick, R., 73
Scalla, S. P., 708
Schaffer, A. J., 145, *663
Schaffner, F., 1058
Scharpff, E., 625
Schatten, W. E., *559
Scheffey, L. C., 1245
Scheflen, A., *1278
Schepers, G. W. H., 528
Schiavetti, L., 1494
Schieve, J. F., 970
Schindler, R., *22
Schleisner, P., 1066
Schmid, H., 1793
Schmidt, H., 1687
Schmidt, H. W., follows 1256
Schmidt, W. H., *1175
Schneierson, S. J., *848
Schreier, P. C., *105
Schreiner, G. E., 711
Schroeder, H. A., *839
Schultz, J. D., 406
Schwaiger, M., 815
Schwartz, A. H., *739
Schwartz, G. S., 1481
Schwiebinger, G. W., *1198
Scott, G. E., *1724
Scott, R. B., 629
Seale, E. R., 228
Seaman, W. B., 1693
Sedzimir, C. B., 1573
Seedorf, E. E., *1361
Segal, S., *1501
Selman, M. W., 402
Sem-Jacobsen, C. W., *774
Sená, J. A., 630
Sepúlveda, B , 1238
Serafini, U., 1167
Shafer, J. C., 1694
Shafran, M. E., 812
Shallow, T. A., 816
Shannon, J. A., *1444
Shapiro, H., 721
Shaw, F. H., 526
Shehadi, W. H., *1350, (correction) 1669
Shelden, C. H., *981
Sheldon, J. M., 1417
Shelley, W. B., *1736
Shenkin, H. A., *1622
Sheppard, H., 1052
Sherrill, J. C., 1479
Shoemaker, W. J., *487
Shope, R. E., *1444
Shoss, M., 1697
Shukry, H., 86
Shulman, N. R., 430
Siegal, S., 1401
Siegel, E., *848
Siegel, M., 146
Siegenthaler, W., 1793
Siegler, A. M., 1245
Sieker, H. O., 970
Siffert, R. S., *1607
Sigler, L. H., 1682
Silver, S., *1
Silverman, M., 1490
Simon, H. B., *657
Simonin, P., 529
Simpson, E. E., 808
Sinclair, G. E., 1052
Singer, K., *190
Sittig, H., 223
Sjoerdsma, A., 397
Skanse, B., 1681
Skillicorn, S. A., 816
Skillman, R. K., 399
Skinhøj, E., 1243
Skinner, E. F., 77, 222
Skolnik, E. M., 1695
Skrimshire, J. F. P., 1412
Slayton, R. E., 1683
Sloper, J. C., 1155
Smadel, J. E., *1444
Smith, C., Jr., 969
Smith, C. W., *1431
Smith, J. E., 811, 811
Smith, M. J., *105
Smith, S. W., 718
Smith, W. G., 1690
Smith, W. P., *1730
Snapper, I., 712, 1071
Snow, D. J. R., 1573
Snyder, G. A., 1676
Soergel, W., 523
Sohval, A. R., 1685
Sones, M., 69
Soroff, H. S., *411
Sotgiu, G., 1238
Spears, J., 1402
Speers, R. W., 713
Spelman, J. W., 1327
Sperling, E., 144
Spies, T. D., *645
Spiller, V., 1163
Spink, W. W., *1534, 1569
Spjut, H. J., 632
Springer, D. W , 1697
Stacey, C. H., 1160
Stanley, J. R., 1327
Starkey, G. W. B., 1158
Steen, E., 1240
Stein, I. F., 84
Steinberg, I., 1329
Steinhoff, A., 817
Steinzeig, S. M., 975
Stemplen, S. J., *22
Stenger, K., 719
Stern, W. E., 1688
Sterne, T. L., 730
Stevenson, S. S., 1491
Stiles, F. C., (correction) 615
Stocks, P., 1679
Stone, D. J., 69
Stone, R. E., *645
Storaasli, J. P., *1704
Storti, R., 730
Stougaard-Andresen, P. F. R., 523
Stoughton, R. B., 87
Straith, R. E., 1496
Strauss, A. A., *739
Strauss, S. F., *739
Stricker, J., *1731
Ström, J., 1066
Stulberg, C. S., 724
Stunkard, A. J., 516
Stuppy, L. J., *434, 625
Suárez, R. M., *645
Sullivan, C., *1002
Suskind, R. G., *986
Suter, W. B., 720
Sutow, W. W., 1072
Suzman, M. M., 1154
Svaar, O., 721
Swader, J. I., *1085
Swan, H., 1242, 1796
Sweany, H. C., 1248
Swedenburg, R. D., 1065
Swenson, O., 1688
Swisher, W. P., 1483
Sykes, M. P., 818
Szirmai, E., 808

T

Taber, R. E., *487
Tabershaw, I. R., *677
Tannenbaum, W. J., *739
Tarshis, M. S., 1250
Taselaar, J. A., 1414
Taub, R. G., 1695
Tedeschi, C. G., 1576, 1576
Testoni, F., 819
Texidor, T. A., *1364
Thaysen, E. H., 1239
Theodos, P. A., 150
Thompson, G. J., *657
Thompson, H. M., *1201
Thornton, M. J., *1177
Thorpe, J. D., *32
Tillman, A. J. B., 1067
Tobis, J. S., *1607
Todd, A. S., 1680
Toone, E. C., Jr., 1484
Torrey, J. D., 1493
Tosi, E., 515
Toussaint, C., 526
Tovell, R. M., *1337
Tremble, G. E., 148
Trias de Bes, L., 1794
Tricot, R., 230
Truelove, S. C., 1793
Truhlsen, S. M., 1165
Trusler, H. M., 1570
Tschabitscher, H., 144
Tubiana, M., 529
Turner, H. B., *105
Turner, R. F., *1724
Tuteur, W., *1112

U

Udenfriend, S., 397
Uglov, F. G., 1412
Unverricht, W., 1406
Urban, J. A., 627
Urist, M. R., *1088
Urteaga, O., 1493
Utne, J. R., 1419

V

Vague, J., 1162
Vakil, R. J., 1156
Vallery-Radot, P., 711
van Ordstrand, H. S., 528
Varco, R. L., 1242
Varco, S., 1676
Vargha, G., 402
Vecchietti, G., 722
Véran, P., 516
Ver Brugghen, A., 1243
Verdú, R., 1154
Verhaart, W. J. C., 226
Verjaal, A., 522
Vestal, A. D., *487
Villa, L., 1166
Vilter, R. W., *1210
Vogel, P. J., *1516
Vogl, A., 400
von Brandis, H. J., 79

W

Wachowski, T. J., *160
Wald, M. H., 1057
Wald, N., *29
Waldron, J. M., 1794
Wallace, H. M., *1607
Wallensten, S., 815
Walsh, R. J., 629
Walter, J. B., 224
Wangensteen, O. H., *163
Wannagat, L., 1072
Ward, T. G., *986
Warren, S. L., *1581
Wartonick, W., *1015
Watkins, E., Jr., 1487
Webb, G. A., 522
Weens, H. S., *1525
Weihl, C., 1492
Weil, M. H., 148, *1592
Weinstein, A. B., 1163
Weinstein, L., 514, 1683
Weir, J. R., (correction) 615
Weisberger, A. S., *1704
Weisel, W., 519
Weismann-Netter, R., 1153
Weiss, A. G., 225, 1489
Weiss, R. S., 725
Weissbach, H., 397
Weissenberg, E. H., *1201
Welch, C. E., 78
Welti, H., 974
Wenger, D. S., *1347
Wense, G., 145
Wentzell, R. A., 1164
West, C. D., *1701
Wetchler, B. V., *31
Weygandt, G. R., *31
Whitaker, W., 710
White, F. C., 1060
White, H., *95
White, J. C., 1413
White, P. D., 1148
Whitehouse, D. B., 227
Wild, J. B., *26
Wilder, J., 1799
Wildman, C. J., 1681
Wilkinson, M. C., 1242
Williams, E. O., 227
Williams, G. A., 1161
Wilson, B. N., *1363
Wilson, R. N., 1332
Wimberley, N. A., Jr.,
Windesheim, J. H., 149
Wissmer, B., 221
Witkowski, L. J., *9
Witts, L. J., 1071
Wohlfart, G., 1066
Wood, J. E., Jr., *635
Wood, P. M., *766
Woodhall, B., 226, 1574
Woodmansey, A., 1494
Woody, H. B., *676
Woody, N. C., *676
Woolsey, R. D., *1713
Wretlind, A., 527
Wright, D. G., 1574
Wright, L. H., *766
Wu, Y.-K., 223, 1062

Y

Yahn, O., 1411
Yeager, G. H., 223
Yohalem, S. B., *1
Yokota, T., 624

Z

Zambano, A., 229
Zamcheck, N., 76
Zapasnik-Kobierska, H.,
Zappalà, G., 1412
Zeligman, I., 708
Zellermayer, J., 1164
Zerbini, E. J., 224
Zimmerman, H. A., *144
Zintel, H. A., 81
Zion, M. M., 1408
Zöllner, N., 819
Zohman, B. L., *102
Zoll, P. M., *1428, 1681
Zondek, S. G., 1683
Zummo, B. P., 524

INDEX TO PAGES

OF THE JOURNAL, ACCORDING TO WEEKLY ISSUES—VOLUME 159, SEPTEMBER-DECEMBER, 1955

Pages	No.	Date
1- 94	1	Sept. 3
95- 154	2	Sept. 10
155- 234	3	Sept. 17
235- 410	4	Sept. 24
411- 536	5	Oct. 1
537- 634	6	Oct. 8
635- 738	7	Oct. 15
739- 830	8	Oct. 22
831- 980	9	Oct. 29
981-1078	10	Nov. 5
1079-1174	11	Nov. 12
1175-1256	12	Nov. 19
1257-1336	13	Nov. 26
1337-1424	14	Dec.
1425-1500	15	Dec. 10
1501-1580	16	Dec. 17
1581-1700	17	Dec. 24
1701-1804	18	Dec. 31

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